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ELECTRIC RAILWAY TRACTION

A Supplement illustrating and describing developments in Electric Railway Traction is presented with every copy of this week's issue

DISPATCH OF "THE RAILWAY GAZETTE"
OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. The RAILWAY GAZETTE possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders 1939, No. 1440

TO CALLERS AND TELEPHONERS

Consequent on the war and the blackout regulations, as an emergency measure to assist our staff in getting home before it is fully dark, our office hours (without a lunch interval) until Saturday, February 24, are:—

Mondays to Fridays - 9 a.m. till 3.15 p.m.
Saturdays - - - 9 a.m. till 1 p.m.

British Investment in Latin America

OF the total British capital invested in Latin America and quoted upon the London Stock Exchange, amounting to £1,127,904,305 at the end of 1939, no less than £477,765,391, or 42·4 per cent., relates to railway undertakings. Statistics compiled annually by the *South American Journal* show that the yield was but £5,773,648 or 1·2 per cent., the same as for 1938; £336,032,299 received no return. At least the investor in railways suffered no worse than those who hold other securities of the republics, for in no case did the yield last year increase, while over the whole there was a decline from 1·7 per cent. to 1·6 per cent. The yield on government bonds was only the same in percentage as upon railway stocks; the sum disbursed on State loans was smaller, £4,030,466. In 1929 the yield on Latin American railway investments was 4 per cent. and that on the whole of our loans 4·5 per cent. Of our total investment 62 per cent. received no return last year, but, since the primary products of Latin America are likely to be stimulated by the war, investors may hope for some improvement in their fortunes. From a national viewpoint a higher return upon this great mass of foreign investment would be doubly welcome in view of the importance of foreign exchange in a modern conflict.

* * * *

Tasmanian Government Railways

An increase of £22,373 or 4·82 per cent. in gross earnings was secured by the Tasmanian Government Railways during the year ended June 30, 1939, with an advance of only £1,014 or 0·17 per cent. in working expenses. In passenger receipts the gain was £12,667 or 19·23 per cent., with an increase in the average journey from 14·52 miles to 15·32 miles. Goods and mineral tonnage was only 1·80 per cent. less than the record tonnage of the previous year and was caused mainly by the cessation of cement traffic in connection with work at Tarraleah. Goods and mineral receipts improved by 2·57 per cent.

	1937-38	1938-39
Average miles	651	658
Passengers	2,266,576	2,296,707
Goods and minerals, tons	828,623	813,741
Train-miles	1,481,416	1,914,270
Operating ratio, per cent.	126·36	120·76
Passenger receipts	£116,353	£129,020
Goods and mineral receipts	288,575	295,995
Total earnings	£464,554	£486,927
Working expenses	586,991	588,005
Loss on working (excluding £94,000 for depreciation)	122,437	101,078

The introduction in November, 1938, of a one-class fare, representing an increase of 10 per cent. on the previous second class fare, stimulated passenger travel and reduced the haulage of unnecessary cars.

* * * *

The Tasmanian Transport Commission

The recently-issued report on the working of the Tasmanian Government Railways for the year ended June 30, 1939, refers to the retirement, on February 14, 1939, from active duty in the Railway Department of Mr. F. P. St. Hill, who had been Commissioner of Railways since November, 1927. On July 1, 1939, the management of the railways, as mentioned in THE RAILWAY GAZETTE of July 28, 1939, passed to a Transport Commission, as the result of the passing of the Transport Act, 1938, and Mr. St. Hill is one of the Associate Commissioners in the new administration. After serving for some time as an engineer in the Public Works Department, on his return from New Zealand, Mr. St. Hill became Railway Resident Engineer at Launceston in 1922, Chief Engineer in 1924, and Commissioner in 1927. His term of office coincided

with a very critical period in the history of the railways, when road competition became acute, and many difficult problems of railway management had to be faced. Mr. St. Hill during his term of office won the affection and esteem of the railway staff and of the community generally.

* * * *

Strategic Value of Middle Eastern Railways

Various strategic railways in the Middle East together provide a protection second only to sea power, against any threat of aggression aimed at Iran and Iraq, with the object of seizing the oil-fields in those countries. Assuming that the latter, aided by the Allies, would resist this aggression, and that Turkey could not afford to stand aside in such circumstances, the principal railways concerned would be the Kantara—Palestine and Hedjaz lines, the just-completed Turkish extension to Erzerum, the nearly-finished through connection between the various Turkish and Syrian ports and Baghdad, the Basra—Baghdad line, the Trans-Iranian Railway from the Persian Gulf to the Caspian Sea, and also—if a diversion on the flank is required or Afghanistan is threatened—the Karachi—Quetta—Duzdap (Seistan) route into Eastern Persia. Except for the Iraqi extension from Baiji to Mosul and Turkey or Syria, which is due to be opened within the next three months, all these and many subsidiary lines are available as lines of communication. In the event of the U.S.S.R. attacking Afghanistan, there are many hundreds of miles of the Indian North Western system expressly designed to meet such a contingency, and—due to experience of almost perpetual frontier campaigns—their mobilisation is practically routine.

* * * *

The Status of Engineers

From time to time we have mentioned the activities of the Engineers' Guild which was founded something over a year ago to improve the position and prospects of professional men. In a paper prepared for the British-American Engineering Congress, 1939, but not read because of the war, Sir Clement Hindley, President of the Institution of Civil Engineers, reviewed the "Activities for the Improvement of the Social and Economic Status of the Members of the Civil Engineering Profession" and it would appear that the Engineers' Guild was by no means the first or only movement of its kind. Acting on the supposition that "unity is strength," members of the four senior institutions set up an Engineering Joint Council soon after the last war, but this council never gained executive powers and engineers continued each one to fight his own personal battle for adequate remuneration and due recognition. Sir Clement Hindley does not seem to think very much of the idea of collective bargaining as a means to the desired end; rather does he believe that "the maintenance and improvement of the standards of technical qualifications, and a rigid adherence to the prescribed standards of professional conduct, coupled with co-operation with other engineering bodies in the furtherance of these standards, are the activities best calculated to improve the social and economic status of the engineer."

* * * *

I-beam Pile Bridge Piers

In our Overseas pages this week is described a type of bridge pier, consisting of a cluster of I-beam piles suitably capped and braced, which is now being used extensively on the Canadian National Railways. This is because it has proved invaluable either where deep foundations and high piers are necessarily combined, where rapidity in erection of a permanent structure is all-important, or where neither of these conditions obtains but economy

and facility in erection are desirable. Obtainable in lengths up to 70 ft. and easily extensible to greater lengths by jointing, the I-beam lends itself readily to such uses, especially as cappings and bracings can be welded to the beams conveniently. This form of pier strikes us also as being particularly suitable in wartime for the rapid replacement of high bridges and viaducts demolished or seriously damaged by explosives, aerial bombs, or gunfire. The materials required are easily obtainable, stored, handled and transported, and the pile-driving is straightforward and rapid, as also is the field welding of the caps and bracings.

* * * *

Indicator Accuracy

Knowledge of the vast task which has been superimposed upon the already intensive operation of the suburban railway lines, engenders patience with unpunctuality of trains. Recent criticisms which have been based upon checking times of arrival and departure have ignored the causes and avoided any attempt at constructive suggestion. More success might attend the "gingering up" campaign if attention were devoted to some of the minor irritants to the daily passenger. We had an example at a London terminus last week. At 6.30 p.m. the indicator board showed our next train to be the 6.55 p.m. and we assumed that the 6.24 p.m. had left on time. Caution and a little experience prompted us to visit the usual departure platform and there was the 6.24 p.m. Before it departed at 6.36 we were able to ponder upon the number of those who, having consulted the indicator had sought refreshment and thus left us comfortable space in the carriage. We also concluded that a little greater liaison might be effected among the station staff. The satisfaction of latecomers who caught the train might to some extent offset the annoyance of those who had been at the platform on time.

* * * *

Jubilee of the Rhaetian Railway

The first section of the metre-gauge Rhaetian Railway, the most extensive of the independent lines in Switzerland, was opened between Landquart and Davos on October 9, 1889, and to commemorate the jubilee the company recently issued a beautifully illustrated volume containing over 200 pages, dealing with the history, construction, working, and other features of its system, which covers the Canton of Grisons (Graubünden). It attains a height of over 5,900 ft. in the Albula tunnel and is worked entirely by adhesion. The main line connects with the Swiss Federal system at Chur. The remarkable Albula section was opened in 1904. Electric traction on the 15,000-volt single-phase low frequency system was introduced in 1913 and finally extended to cover the entire line, 172 miles, nine years later. The various sections of the commemorative book are written by the Secretary, Dr. Clavuet; the Chief Engineer, Herr Conrad; Superintendent, Herr Lang; and the Commercial Manager, Herr Metzger, who has completed the text begun by his predecessor, the late Herr Wohler.

* * * *

A Curious False-Clear Failure

A curious example of false-clear automatic signals occurred on September 16, 1939, on the Chicago Burlington & Quincy Railroad, when a freight train standing on a main line had clear home and approach signals in rear and was run into by another. The accident is reported in our American contemporary *Railway Signaling* for December last. The signalling was of the two-aspect type, to which the Burlington has remained faithful, with A.P.B. (absolute permissive block) single-line circuits and line controls carried over taped and braided cables sup-

ported by a messenger wire. Inspection at first showed no defect in the equipment. Eventually an intermittent earth was discovered, but even with this set up permanently the working was not adversely affected. Further tests, however, revealed an intermittent cross connection of 20 ohms resistance between two conductors in a cable. Careful inspection disclosed that some shot from a hunter's gun had become lodged therein, and on its removal the cross resistance somewhat increased. The cross itself was finally traced and found to be due to one small shot embedded in the cable about 1,200 ft. from the automatic home signal that failed to protect the standing train.

* * * *

Track Welding in New South Wales

The New South Wales Government Railways were the pioneers of welding rails into long lengths, and since 1933 297 track miles have been so equipped. Prior to December, 1938, rails were welded exclusively by the Thermit process, but the greater economy derived from the use of a flash-butt welding plant recently installed at Chullora has relegated Thermit welding to work in the track at particular localities. At Chullora rails are being welded into lengths of as much as 360 ft. and loaded on to special flat-top wagons for transport to the site. Welds to the number of 300 a week are being made and the cost per weld when 107-lb. rails are used amounts to approximately 8s. 4d. According to the N.S.W.G.R. report for the year ended June 30, 1939, of 54 $\frac{1}{2}$ miles of welded track laid in, 37 $\frac{1}{2}$ miles were Thermit welded and 17 $\frac{1}{4}$ flash-butt welded. Included in the latter figure were a length of 3 miles 75 ch., another length over 3 miles, four lengths over 2 miles, and four lengths over 1 mile. The re-surfacing of crossings by the oxy-acetylene process has now been established, and four gangs, controlled by specially trained men, are employed in the Sydney Metropolitan and the Newcastle areas for this work. The treatment has been so successful that it is being extended to country districts.

* * * *

Principles of Compensation

THE prolonged negotiations, now reaching finality, of a settlement of the terms on which the State is to reimburse the railway companies for wartime control has occasioned much conjecture as to the form the ultimate agreement will take and the principles on which so much difficulty has been experienced in reaching unanimity. At one time it seemed that it might have become necessary to submit the matter to independent arbitration, but, as was urged in THE RAILWAY GAZETTE of January 19, agreement by joint consultation has been found both possible and preferable. It is essential that the underlying principles inherent in the present relationship between the parties and vital to the continued wellbeing of the railway industry should be appreciated. Obviously any financial arrangement with the Government should be reasonable alike to railway stockholders and to the State, but just what that implies is not so clear. It would seem, however, that the revenues which the companies should be assured of receiving during the war must lie at the lowest somewhere between the present level and the amount—the standard revenues—which Parliament itself envisaged as a fair and reasonable return at the time of the grouping. Since current revenues are rapidly approaching the level of 1929, when they were £45,000,000, it may justifiably be argued that, just as standard revenue of £51,000,000 sets the upper limit so does £45,000,000 fix the lower level.

Within these limits there is a range of no less than

£6,000,000—an amount sufficient to make considerable difference to the fortunes of the proprietors of the lines. Nor must the point be overlooked that in view of the probable continued expansion in the traffics of the companies in the event of a prolonged war, and the likelihood that upon a commercial basis they might well reach the standard, any settlement at a figure below £51,000,000 must involve some sacrifice on the part of the railways. There is a further important aspect of the revenues which may be agreed. The persistence of reports of nationalisation of railways suggests that at some future time such a step may become practical politics. In that event it might become necessary to agree upon a capitalised revenue as the capital value of the assets of the companies. There is no doubt that then the amount agreed voluntarily by the companies as their wartime revenues would be cited, and, in circumstances which are not without the bounds of feasibility, a situation might arise in which holders of some junior securities might be left without any return. A further factor which must not be overlooked by the parties in the settlement of terms is the incidence of Excess Profits Tax upon whatever revenue may accrue to the companies with a resultant reduction in the amount available for distribution.

Another matter to which urgent consideration must be given in order that the railways may be maintained in an efficient and economic manner is that railway charges have been permitted to make no move to cover the great increase in the costs which the companies have had to meet since the outbreak of war. In this the railways are alone among the major industrial enterprises of the country and in this position there is inherent a danger which was well exemplified just after the last war. During the war railway charges were left at the 1913 level, which was, of course, that of the preceding years of peace and was little different from that in force as far back as 1892 except that in 1917 certain passenger fares were raised in an endeavour to restrict travel. The result was that in 1920 there was a deficit on working of some £50,000,000 (though not if the Government had paid for its traffics), and to rectify this it was necessary in January, 1920, to raise rates by rather more than 50 per cent. Later in the same year revision again became imperative and in August passenger fares were increased to a level about 75 per cent. above pre-war and in September goods rates were put up to approximately 112 per cent. above the 1913 figures. If the need for such drastic sudden increases, with their resultant unsettlement of trade and disaffection of the public, is to be avoided on this occasion, steps will have to be taken to make such moderate advances from time to time as circumstances justify. The incidence of sharp increases in rail rates in the early years after the last war, when road transport competition was beginning to grow, had an effect from which the companies have not yet recovered.

It is equally important that the control exercised by the Ministry of Transport through the Railway Executive Committee should be sufficiently flexible to enable the railways to be operated efficiently and to retain to the full that public goodwill which has proved so great an asset in the past. The control vested in the Ministry is complete and so far it would appear to have been exercised wisely and with due restraint. Nevertheless, the dangers which might arise in the event of a decision by any Minister of the time to implement a policy which practical operators might recognise as short-sighted or worse are very real. It cannot be emphasised too strongly that the British railways are in fact the property of their stockholders and that any damage to that property by the unwise exercise of Government control must be avoided at all costs.

Railway Stock Prices

THE rise which has occurred in recent weeks in the prices of home railway stocks has been accompanied by the inevitable suggestions of profiteering by sections of the daily press. The political adherence of these organs in itself detracts considerably from any weight their protestations might have upon informed opinion, but the arguments advanced and the suggestions made are themselves fallacious. An endeavour is made to play upon public sentiment by urging that a conscripted railway should not fare better than a conscripted man and by the statement that increased profits can come from one source only—the public funds. None of the suggestions will bear examination, but nevertheless their dissemination is undesirable at a time when railways are likely to occupy a prominent position in the public eye by reason of the financial arrangement with the Government.

The advance in prices has attracted attention rather because it represents a recovery from an extremely low level than of any unusual height of quotations. It is, of course, the position of the junior and marginal stocks only which has any relevance to the suggestions made of undue advance. Debenture, rent charge, preference, and similar stocks, service of which has never been in doubt, have been influenced by shortening interest rates and the rise in gilt-edged stocks. Among the junior stocks, present prices, notwithstanding the vast increase in movement of traffic, are often lower than the best touched last year, while they are all much below the highest points of 1938. If one goes back to the records of 1929, the last occasion when railway movements were upon a scale similar to that of the present intensive working, the latest values which the markets have placed upon the stocks appear modest indeed. In any event, most of the 850,000 holders of railway stocks are permanent proprietors, who paid much higher prices for their investment. The number of speculators in railway securities is small, more especially at the present time when wartime restrictions upon stock market operations deter all but the most hardy. How present prices compare with those at the beginning of the year and with the highest in 1939, 1938, 1937, and 1929 is illustrated in the following table:—

	Present Jan. 2,	Price	1940	1939	1938	1937	1929
G.W.R. Ord.	39	37	38	65½	67½	91½	
L.M.S.R. Ord.	14½	15	17	30½	36½	59	
Do. 4% Pref.	65	63½	63½	82½	92½	75½	
Do. 4% Pref. 1923	49	44½	46½	70½	82½	74	
L.N.E.R. P.F. Ord.	4½	4	5½	8½	12½	39½	
Do. Def. Ord.	2½	2½	3½	4½	6½	15	
Do. 4% 1st Pref.	44	40	38½	68½	79½	67½	
Do. 4% Sec. Pref.	15½	13½	15	27½	31½	61½	
Southern P.F. Ord.	71	66½	78	87	98½	77½	
Do. Def. Ord.	14	14	19½	21½	27½	34½	

There can, of course, be no comparison between an individual conscripted to the service of the nation and a vast system which over many years has been built up and maintained at a high pitch of efficiency, at a cost which has had to be borne by stockholders at the expense of dividends. The railways are more nearly analogous to the great armament companies whose businesses suffered damage from the national policy of disarmament but which are now once more heavily engaged upon work of extreme national importance. Unless the companies are permitted to reap some benefit from the results achieved by their self-denial and foresight, a heavy blow will have been struck at private enterprise. Nor must it be overlooked that the control exercised over the railways by the Government cannot fail to have its disadvantages to the lines. Many other large industrial enterprises engaged even more directly in the war effort have been permitted to retain their freedom of action.

Had the railways been similarly placed, there is no doubt that they would have made very substantial profits from their wartime activities upon a commercial basis. Public funds, far from being a source of undue profit to the railways, are likely to benefit from the control which is now exercised, since in a condition of complete freedom the railways would be free to charge full commercial rates for all Government traffic handled and there would be no question of fixing any upper limit of profit save that provided by Standard Revenue and the subsequent sharing of excess between railways and traders.

* * * *

Declaration of Railway Dividends

READERS who have been interested in the statements which have recently appeared in the press in regard to the probable delay in the date of payment of the next dividend on the pre-ordinary stocks of the Great Western Railway Company will have observed that it was pointed out by the company in its latest announcement that the company is prevented by general Statute from declaring dividends until the accounts have been certified by the Auditors. This is a reference to Section 30 of the Railway Companies' Act, 1867, which enacts that no dividends shall be declared by a railway company until the Auditors have certified that the accounts contain a full and true statement of the financial condition of the company, and that the dividends proposed to be declared are *bona fide* due thereon.

It is not unlikely that the Great Western Company regarded with a certain amount of irony the statement of the Minister of Transport that he knew no reason why the company should postpone the payment of the dividends in question, as history shows that it was the company and the Minister's predecessor, the President of the Board of Trade, who was largely responsible for the restrictions imposed by the Section of the Act of 1867 above mentioned. At a general meeting of the company held on March 29, 1867, the proprietors passed a resolution authorising the directors to pay dividends on certain classes of the company's capital, including the ordinary stocks and shares, in fully paid up 6 per cent. irredeemable preference shares. Certain of the shareholders were strongly opposed to the adoption of this course and one of them succeeded in obtaining an injunction against the company restraining it from giving effect to the resolution.

Meanwhile, in the Parliamentary Session of 1867, the Government had introduced a Bill (which ultimately passed into law as the Railway Companies' Act, 1867) dealing with a number of miscellaneous matters affecting Statutory railway undertakings, which had been the subject of enquiry by a Royal Commission, and from references to speeches made at the time by Sir Daniel Gooch who was then the Chairman of the Great Western Railway Company, it appears that, as a consequence of the publicity given to the shareholder's action against the company, the Government took the opportunity of introducing safeguards into the Bill to deal with payment of dividends and the auditing of the accounts. It is these very provisions which the company is now loyally trying to observe and which the Minister of Transport does not appear to regard as being so restrictive in their operation as does the railway company. The sequel to the episode of 1867 was that in the next year the company had to go to Parliament for express authority to legalise the capital which it had already issued under the Resolution of March 29, 1867 (and before the recalcitrant shareholder was successful in obtaining his injunction at the latter end of that year), and the authority is contained in the Great Western Railway (Dividends) Act, 1868.

LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

Franco-British Unity and the Channel Tunnel

French Line,
20, Cockspur Street, London, S.W.1
January 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Your editorial comment on M. Dautry's visit and on Franco-British unity will be greatly felt by all French persons residing in Britain, who most sincerely hope that the ties between our two countries will become still closer and closer. But deeds speak more than words. Would it not be very useful for conducting our every-day life, if that fine spirit of co-operation between our two countries could be extended also to the connections between France and Great Britain?

The least which can be said is that under existing conditions the trip from London to Paris is a most unpleasant, difficult, and hazardous venture. Could not the unavoidable formalities at both frontiers be curtailed and simplified? all the examinations being carried out simultaneously by officials of both nationalities. Could not the service be accelerated? At present it takes nearly 12 hours, minimum, to go to Paris. When one remembers that during the last war, with the Germans at the doors of Amiens and the main line to Calais running just a few miles behind the front line, and also the ruthless submarine campaign in full swing, the service was performed with punctuality, at fixed hours, with a schedule of about 8 hours, one is wondering whether the very long wait for tides and the poor connections in the harbours could not be dispensed with.

But what a pity that lack of vision and certain private interests have prevented the completion of the Channel Tunnel. If this tunnel were in existence now, the question of blockade would not even be considered, as the French harbours could be in direct railway communication with this country, in spite of the mines, submarines, and aircraft. If we are to be ready for a long war, why not start at once

building the tunnel? This step would show the world that our two countries are bound together for ever, and would have a tremendous moral effect. In war, one must be prepared for the worst, and who can tell that the very existence of such a tunnel in the last stage of the struggle will not be perhaps the deciding factor, which will make victory lean towards our cause. It is high time that we should show some spirit, vigour, and decision.

Very truly yours,
P. DE MALGLAIVE

Dividends on Basis of Standard Revenue

The British Railway Stockholders
Union Limited,
25, Victoria Street, London, S.W.1
January 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I notice in your issue of January 26 Mr. G. A. Sekon suggests that I might have made a strong point "by demanding for stockholders the payment of dividends based on the assumption that Standard Revenue has been earned." What was at the back of my mind when I wrote was the possibility that the stockholders might appeal to the Courts to define rights which must exist although there is admittedly some doubt as to their precise nature. I cannot imagine that we could go to the Courts on an assumption of that kind. On the other hand, I can see no reason why we should not ask the Courts to say that the Government is under a definite obligation to make to the proprietors a reasonable payment for services rendered, and that a reasonable payment must necessarily be based upon the revenue the traffic would earn if the proprietors were in control of their own property.

I am,
Yours very truly,
ASHLEY BROWN

difficulty may be alleviated in part by the production of say, a Spanish edition. We can think of less effective methods of encouraging the use of British materials.

Early British Locomotives.—By C. F. Dendy Marshall. London: Locomotive Publishing Co. Ltd., 3, Amen Corner, E.C.4. 11 in. x 8½ in. 108 pp. Illustrated. Price: paper covers, 10s.; cloth, 12s. 6d. net.—It is noteworthy that, for many years past, serious contributions to the early history of the steam locomotive have taken the form of biographical studies of a particular engineer or at least have been written with the object of glorifying the work of some claimant to pioneer honours. Mr. C. F. Dendy Marshall occupies an unique position among modern writers in having conducted his own extensive researches solely in the interests of historical truth and without having any axe to grind. Over a long period it has been his practice to contribute to the technical press from time to time articles setting forth his latest discoveries, and the most recent collection of these forms the basis of a new book from his pen which has just been issued under the title of "Early British Locomotives." It is described as a supplement to the first of the

PUBLICATIONS RECEIVED

Cole's Permanent Way, 10th Edition. By Colonel Sir Gordon Hearn, R.E. London: E. & F. N. Spon Limited, 57, Haymarket S.W.1.; New York: Chemical Publishing Co. Inc., 148, Lafayette Street. 7½ in. x 5 in. 196 pp. Price 10s. 6d. net (10s. 10d. post free).—This well-known work first appeared in 1885, and to keep pace with the development of permanent way technique new editions have been published from time to time. Since the appearance of the ninth edition in 1928 the necessity of providing permanent way adequate for increasing speeds, axle loads, and train frequency, has given birth to new methods and practices on both the practical and technical sides. Properly to cope with these new developments Sir Gordon Hearn has entirely rewritten this book for its tenth edition. It now includes information on such comparatively recent processes as measured shovelling packing, mechanical sleeper tampering machines, the realignment of curves by string lining, and the latest practice in the canting of curves. There is valuable information in the first chapter concerning permanent

way components, but sections 14 and 15 of this chapter dealing with stresses in track and curved track respectively might we think have been expended with advantage, since in these matters in particular the behaviour of passing trains plays a vital role. It is most important that the effect of moving vehicles on the track and of track defects on trains especially at high speeds should be thoroughly understood and appreciated by permanent way men. The contribution of transitioned and canted junctions to higher speeds and greater comfort, in our opinion, make them worthy of inclusion in a work of this nature and would not have materially increased the size of the book. Mathematical calculations have been still further simplified. Since the work covers all classes of permanent way both at home and abroad and all gauges from 2 ft. to 5 ft. 6 in., it should make a universal appeal to all who are engaged upon the permanent way. It seems a pity that the information contained in this book should be available only to those who understand our language; is it pardonable to speculate whether in time the

author's "Two Essays in Early Locomotive History" and this phrase in fact gives an accurate description of the contents, for the present volume is in no sense a complete account of early British locomotives, but is a collection of such supplementary information as Mr. Dendy Marshall has been able to secure in the 12 years since his "Two Essays" appeared.

In the original work the author compiled a catalogue of the first 100 locomotives, based upon the information then available, but the evidence as to some of them was scanty and incomplete. Moreover, in the intervening period, evidence of the existence of other early engines hitherto unsuspected has come to light. At present one or two of them are not much more than shadows arising from the past, but (as the author says in his prefatory note) it is hoped that publication of the information now collected in book form will lead to further discoveries being made. The fifth chapter of the present volume may be considered as forming a supplement to the late Mr. J. G. H. Warren's

"Century of Locomotive Building" as it is based on an old ledger of Robert Stephenson & Company which was discovered after Mr. Warren's book had been published.

The present volume is essentially a treatise and not a self-contained work. As such, it can have very little appeal for the general reader, for throughout it assumes familiarity with the author's "Two Essays." Mr. Warren's volume, articles in *The Engineer*, and other standard sources of information, and avoids repeating what has been placed on record elsewhere. The result is a work of outstanding value to the student of early locomotive history, but in no sense a volume for general or popular consumption.

Monthly and Yearly Highest and Lowest Prices. With a Diary of Principal Events in 1939: January, 1940, issue. London: Fredk. C. Mathieson & Sons, 16, Cophall Avenue, E.C.2. 10½ in. x 7½ in. 16 pp. Paper covers. Price 2s. 6d.—An interesting part of this publication is the table of 1939 principal events affecting stock

exchange prices. Of immediate railway significance were the issue in January, 1939, of £7,500,000 Southern Railway 4 per cent. debenture stock 1970-90 at 98½; the announcement in February of a dividend of only one half per cent. for the year on Great Western Railway ordinary stock; the report in May on the Square Deal for the main-line railways; and the passing in October of the "clear-up" dividend on London Transport "C" stock. The publication also includes the highest and lowest prices marked monthly for the 12 months ended last December, and yearly for the past six years, of selected active stocks. On page 2 are notes of capital increases and reductions, scrip bonuses, and so forth, and a statement of minimum bank rates of discount.

Circuit Breakers.—The large selection of G.E.C. circuit breakers of line contact, earth leakage, flameproof, battery cut-in and cut-out, open, and brush types are described in publication X (3) Section just issued from the maker's Kingsway office, London, W.C.2.

THE SCRAP HEAP

The London Passenger Transport Board has a staff of more than 87,000, of whom some 8,000 are on war service.

MR. GALE OF BODMIN

Mr. G. Gale of Bodmin, Southern Railway, has been appointed to Lydford in succession to Mr. C. Rock, who retired early in January after 43 years of railway service. Mr. Gale has been at Bodmin since January, 1912, and has identified himself with many branches of local work and interests. Mr. Gale was Mayor of Bodmin in the year 1937-38, and received the King on the occasion of his visit to the West Country.

* * *

During the 1914-19 war, the Y.M.C.A. was very active in the provision of facilities for travelling Servicemen, and one—at least—of its workers showed initiative in tackling a difficult problem. He had to establish a forward station, and was unable to obtain transport for his equipment and stores. By herculean effort he carried the material in batches to a wayside railway station. When a supply train came along and stopped, he enlisted the willing help of some soldiers and packed the whole of his equipment on top of an open truck of ballast which was being sent to repair the permanent way.

* * *

Among the many passengers who suffered serious delay when main-line train services in the North of England were brought almost to a standstill by severe climatic conditions early this week was Lord Horne, the Chairman of the Great Western Railway. He

was to have presided at a meeting of the Glasgow Unionist Association on Monday last, but on that day he sent a telegram from Carlisle stating that he had been in the train for two nights and a day and could not reach the meeting.

* * *

"Germans will be shaved free" is a notice to be seen in most barbers' shops in Slovakia, according to a press message from Budapest. The reason is not love of the German protectors, but the tremendous fall in the value of the mark. Eight Slovak crowns to a mark is the rate of exchange in the banks, but shopkeepers must change them for the official rate of 10 crowns. Thus if a barber shaves a man and takes one mark in payment he must return eight crowns change. In trams and buses, too, if a mark is tendered conductors are stated to refuse payment as they must make up from their own pockets losses of up to 1 crown 80 on every mark taken.

* * *

TRANSPORT FEELS THE STRAIN

Among Manchester's transport workers there are at the moment some 430 guards and drivers out of 4,000 off duty through illness, mostly with chest and throat troubles. The shortage is sufficiently serious to make a reduction in the normal services necessary, and people who gather in the centre of the city for evening entertainments are warned that for the present they will find fewer trams and buses to take them home again and that if they postpone their departure too long they may find no transport available. . . . Increased

strain may well show itself in heightened sickness returns, and there is no doubt about the strain which the black-out imposes on those who are in charge of such vehicles. It is not, of course, a reaction which is peculiar to this country. Great difficulties have been experienced in Germany, too, and it was reported the other day that special arrangements had been made for short holidays by relay on the Baltic coast for the exhausted drivers of Berlin. . . . To arrange one's travelling so far as possible to avoid the rush hours is one of the ways in which we may ease the inevitably heavy burden on the human side of our transport arrangements.—From "The Manchester Guardian."



A snapshot of Paymaster-Lieutenant R. A. Beckett, of Beckett, Laycock & Watkinson Limited, taken on the balcony of a building "somewhere abroad" reading "The Railway Gazette." It will be remembered that at page 779 of our issue of December 15 we announced Mr. Beckett was on Active Service

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

CANADA

Steel Pile Bridge Piers on the C.N.R.

A type of bridge pier that has been found to be both economical and rapidly-erected has recently been adopted by the Canadian National Railways. It consists of a cluster (varying from 18 to 48) of I-beam piles, with welded channel caps and suitable angle bracings.

This form of pier was first used for the Kinojevis river bridge on the new Rouyn branch, briefly described in THE RAILWAY GAZETTE of January 20, 1939. It consists of three 155-ft. through truss spans and one 75-ft. decked plate girder span, and the ground was found to be so unstable down to a great depth, that open or compressed-air caissons or cofferdams were uneconomical. To obtain stability the I-piles were driven so that their overall lengths below and above water level averaged in one pier 175 ft., and in another 145 ft. There are 48 piles in each pier and these were driven with a 3-ton double-acting steam hammer. They are braced above water level with 6-in. by 4-in. by $\frac{1}{2}$ -in. angles and each pile is designed to carry 30 tons. Here, as in later bridges; 12-in. 53-lb. copper-bearing steel I-beams are used in lengths up to 70 ft.—these lengths being joined as required by bolted steel plates—and the tops of the piles are capped with 15-in. 33·9-lb. channels, are welded to them in the field. The angle bracings also were welded to the piles, and temporary jigs were used to hold the tops of the piles in line during the welding of the caps and bracings.

A second bridge on the same line across Lake Lemoyne Narrows, consisting of a 235-ft. through truss girder swing span, two 90-ft. through girder spans, and trestle approaches, also has similar pile piers, except the pivot pier of the swing span, which is of mass concrete. There are two rows of 12 piles, 24 in all, in each pier.

Rebuilt Portneuf Bridge

A third instance—and in some ways the most interesting one—of the use of steel pile piers was in the reconstruction of the Portneuf bridge on the Montreal-Quebec line washed out by flood in September, 1938, and last referred to in THE RAILWAY GAZETTE of November 11, 1938, pages 815-16, wherein the temporary measures taken were described. A temporary timber trestle structure was first run up to carry the important traffic over this bridge, but before the following spring floods, two new steel pile piers and one steel pile abutment had been built to carry the permanent superstructure; the piers measured 85 ft. in height above river bed. Here speed in building was an

important factor, and, owing to depth of foundations and height of the piers and abutment, probably no other permanent piers and abutment could have been completed in the time and at the cost.

A more recent use of these pile piers is in the Nith river bridge in Ontario, which has been reconstructed under traffic. The original brick piers became unsafe, and so two new concrete abutments (each about midway between the old abutment and adjacent pier) and two steel pile piers (also midway in the old spans) were introduced. Each pier consists of 18 piles 60 ft. long with 4-in. by 4-in. by $\frac{1}{2}$ -in. angle bracings. Mr. Charles P. Disney, Bridge Engineer, C.N.R., describes these works in our American contemporary *Engineering News-Record*.

UNITED STATES

No "Square Deal" in U.S.A.

In strong contrast to the willingness which traders and others in Great Britain showed to accord the railways a square deal in the degree of regulation required of them, the most powerful of all U.S.A. industrial organisations—the National Association of Manufacturers—recently adopted a resolution on transport which expressed little more than a demand that the railways and their competitors should get together and settle their own difficulties with each other. The manufacturers refused to take any cognisance of the huge expenditures being made on socialised transport plant (waterways and "superhighways") in competition with the railways, nor the failure to exact from the users of such facilities fees commensurate with the cost thereof, nor to regulate them as the railways are regulated.

Instead, indications are that more and more hundreds of millions are to be poured into waterways and superhighways. The Public Roads Administration (an agency of the Federal Government) has issued a report calling for the construction of 28,000 miles of superhighways, to be paid for, not by the users, but by the Federal Government, under the pretext that the roads are needed for national defence—and also by the device known as "excess condemnation," whereby the road authorities propose to condemn a wide strip of land whenever they construct a highway, later selling this land at a profit to realise a part of the cost of construction.

Meantime, the Roosevelt administration has revived its discussion with the Canadian Government with a view to converting the St. Lawrence River into a canal capable of moving (toll-free) ocean shipping.

The progress of business in the U.S.A. has been persistently upward, despite minor setbacks, ever since 1932, a fact which might be expected to give the railways hope that, eventually, their difficulties might be overcome by the natural expansion of the production of the country. However, so far, large schemes for providing competing methods of transport by the expenditure of public funds have materialised at a rate more rapid than the increase in business; and the end is not yet in sight.

Track-laying on the S.P.R.R. Shasta Dam Diversion

As so often happens on the construction of a new line of railway, the 30-mile diversion of the Southern Pacific main line necessitated by the building of the Shasta Dam in Northern California [last referred to in our issue of November 10, 1939—Ed., R.G.] is broken up into considerable lengths by major bridges. The formation of the intermediate isolated lengths of line has been completed, but track-laying cannot be carried out by standard methods until these bridges are finished. As time is an important factor in the completion of the line a skeleton track is being laid between bridges by lorry service.

The single-line formation width permits of two rails and two bundles of 12 sleepers to each rail-length to be unloaded on top without interference with the use of the remainder of the formation width by lorries. The sleepers are loaded on the lorries with 2 x 4 in. strips interspersed between the bundles so that a hemp sling can be passed round each to facilitate unloading. This is done by a derrick crane mounted on another lorry chassis and power-driven by its engine; the bearing plates and rail fastenings are similarly transported and unloaded.

As each major bridge is completed, material trains can cross it and proceed over the length of line beyond to the next major bridge. For this the girders and other heavy materials can thus be transported by rail direct to site without the delay which would otherwise be occasioned by waiting for track-laying after the completion of the first major bridge. Though this is no new method of construction, some of its details and equipment are of interest, with special application to rapid unloading of materials. The first intermediate section of line being treated in this way is 13 miles in length, and the process is fully described by our American contemporary *Engineering News-Record*.

NORTHERN IRELAND

Road Transport Board Report

The accounts of the Northern Ireland Road Transport Board for the year ended September 30 last show that the board made an operating profit for the first time since its inception in 1935. The operating profit, however, touches only the fringe of the interest

which has to be paid by the board for loans, and when provision is made for this, the accounts for 1939 show that there is a total debit balance on the year of £97,131, as against a debit of £168,527 for the previous year. The accumulated loss of the board over the four years of its existence now stands at £521,935, of which £323,964 represents interest paid.

The net revenue position during the past year has improved by more than £117,000. The passenger services continue to show a profit on their operation, but the freight, while recording a marked improvement over 1938, still shows a deficit.

The balance-sheet shows that the board has received loans amounting to £2,800,000 from the Northern Ireland Ministry of Finance. Asked how he thought the board would fare during the war, Mr. D. L. Clarke (Chairman) replied: "Three months of the present financial year have gone and we have no reason to be dissatisfied."

After making allowances for depreciation there was a profit on the passenger services of £45,217 as compared with £16,385 in 1938, an increase of £28,832. Freight showed an operating loss of £37,524, as against £69,032 last year, or an improvement of £31,508. The total revenue earned by the passenger services was £612,428 compared with £606,275 the previous year. Traffic receipts on the freight side totalled £355,148 in 1939, as against £320,197. The total carryings for the year amounted to 885,000 tons of merchandise and 573,000 head of livestock, an increase of 67,000 tons of merchandise and an increase of 83,000 head of livestock.

No adjustment has been made in the accounts in respect of the pooling scheme with the railways, which has remained dormant.

Railway Clerks Seek Wage Increase

Having succeeded in obtaining substantial increases in salaries for the clerical and supervisory employees of the Northern Ireland Road Transport Board, the Railway Clerks' Association is now demanding from all the Irish railway companies increases for the clerical employees. A recent statement says "Arising out of the position created for the railway clerical and supervisory staff by the war emergency, with particular reference to the increase in the cost of living, the Railway Clerks' Association has submitted to all the Irish railway companies and to the Irish Railway Clearing House a demand for a 15 per cent. increase (with a maximum of £30 per annum) in the salaries of all grades catered for by the association. The demand covers male and female members employed on both road and rail services."

The following resolution was passed at a meeting of the Belfast branch of the Railway Clerks' Association in Belfast: "This branch calls upon our Executive Committee to approach the railway companies to secure an immediate improvement in salaries to meet

the increased cost of living. Railway receipts are increasing daily, and it is unreasonable to suggest that this year's wages should be based on last year's receipts. While we are anxious to maintain peace in the transport industry, we cannot be expected to submit again to an award similar to that given by the Irish Railway Wages Board to our Belfast & County Down Railway members, who, despite the fact that their company's receipts had increased by £506 weekly from the beginning of petrol rationing till the date of the award, were granted only £46 weekly representing a reduction of 2½ per cent. on a 10 per cent. cut in salaries and wages. In other words, the employees received 1/11 of the increase in receipts which the company secured due to the war. We point out that Northern Ireland is the only place in Great Britain or Ireland where railwaymen are not being paid their standard rates."

INDIA

New Railway Opened in Sind

On November 20 last, the new metre-gauge line from Khadro, on the Jodhpur Railway, to Nawabshah, a junction station on the Karachi-Lahore (broad-gauge) main line of the North Western Railway, was opened for traffic. It is 72 miles long and has been constructed by the agency of the former railway. As will be seen from the accompanying map, the new extension completes a triangle of lines and is part of a network built mainly to carry wheat cultivated with the aid of water supplied by the Irrigation Department from the Lloyd Barrage at Sukkur on the River Indus in Sind.

A new metre-gauge passenger platform has been built at Nawabshah to



Map showing the Khadro—Nawabshah extension and connecting lines

the north-east of the N.W.R. station, and is connected with the latter by a new foot-overbridge; the N.W.R. booking office serves traffic over both gauges.

Named Coaching Vehicles

The Bombay Baroda & Central India Railway is now naming the dining cars running on the principal trains of its system. Among others, *Vale of Kashmir*, *Garden of Gujarat*, and *Pride of Peshawar* have recently been noted on the Frontier mails or Bombay liner specials at Delhi. The seven new air-conditioned coaches now nearing completion on the North Western Railway are also to be named, after Indian flowers, as follow:—

Gul-i-Nargis (Narcissus).

Gul-i-Yasmin (Jasmine).

Gul-i-Shabbo ?

Gul-i-Makhmal (Marigold).

Gul-i-Nasrin ?

Gul-i-Lola (Poppy).

Gul-i-Nilofar (Lotus).

If the air-conditioning equipment arrives in time, they are to be placed in service in March, for the hot weather traffic, on the Karachi and Frontier mail trains, and the sanction of the Railway Board is being sought for the construction of a further two for service on the Simla mails, between Lahore and Kalka.

NORWAY

Heavy Christmas Traffic

Traffic on the State Railways this Christmas attained a volume as great as that normally carried at Easter, and some 20 per cent. heavier than at Christmas, 1938. Every available carriage had to be pressed into the service. Owing to the exceptionally cold weather and other difficulties, delays were unavoidable, and during the first few days of 1940 terrible snowstorms have swept the Trondelag districts, bringing almost all road and rail traffic to a standstill. Delays of one and two hours occurred daily on the Trondheim-Oslo service.

Oslo Central Station Scheme

The committee which, as reported on page 746 in THE RAILWAY GAZETTE of October 28, 1938, was appointed to report upon the question of a central station for Oslo, has now handed in its report to the Government. According to information given to the press, it recommends that there shall be a central station on the site of the existing East station. The Drammen railway and a goods line are to be carried in tunnel from the West station under the centre of Oslo to the East, where they will again rise to the surface. The size of the East station will be nearly doubled.

New All-steel Welded Sleeping Cars

The State Railways have introduced some new all-welded steel sleeping cars for the Oslo-Stockholm service. There are 11 second class compartments containing 22 berths, and the weight is only 41 tons. [The cars are illustrated on page 153—ED., R.G.]

THE NORD-BELGE SYSTEM

By LIONEL WIENER

(Continued from page 117, January 26 issue)

ALTHOUGH their mileage is not great, the Nord-Belge lines are of the greatest importance and among the best paying in Belgium. Many main-line services are run over them as they form parts of through routes. Among the best known are the Paris—Brussels services *via* the Meas—Hautmont section, and those between Paris and Liège over two sections of the Nord-Belge, from the frontier to Charleroi and again from Namur to Liège. At one time the Calais section of the Nord Express followed this route, but it has now been re-routed *via* Brussels. There are also several inland or cross-country Nord-Belge *cum* Belgian State (now Belgian National) Railways expresses, including the Brussels—Namur—Dinant—Houyet—Virton St. Mard through trains and the Liège—Namur—Charleroi—Mons—Tournai—Lille services.

There have been no works of any magnitude carried out since the lines were opened save for the building of a spur to cut out the former Huy terminus and a rather curious tunnel reconstruction to the west thereof. The crumbling nature of the hill made it necessary to consolidate the lining of the tunnel, and a peculiar device was resorted to. An inner masonry lining amounting nearly to a complete masonry tube was built within the double-track tunnel. This reduced the loading gauge and made a double track impossible. The lines were therefore "gauntletted" and the resulting four-rail track was safeguarded not only by the usual signals but also—and this is the interesting point—by an axle-counting device which sets the signals at "line clear" only when as many axles as entered the tunnel have emerged.

The Locomotive Stock

Very little is known of the locomotives originally acquired by the old companies taken over by the Nord. The most interesting are the *Namur* and the *Liège*, built in 1845 by Tulk and Ley at the Lowca Works in Whitehaven, Cumberland, for the Namur & Liège Company. These were the first Crampton engines ever built and the forefathers of an incredibly large Continental offspring. Their dimensions may be seen in the first column of the table. In working order these locomotives weighed 22 tons, of which 10·5 were available for adhesion. Nothing is known of their tenders.

The firm of Régnier Poncelet (St. Leonard Works, Liège) built two six-wheel coupled locomotives in 1848-9 which were called *La Victoire* and *La Meuse*. The boiler centre line was 5 ft. 8 in. above the rails, and the buffers were rather low—about 3 ft. above the rails.

The Charleroi to the French Frontier Railway Company still employed the haycock firebox as applied to the 2-4-0

locos ordered from the same firm and delivered in 1852 on the opening of the line. Six 0-4-0 locomotives were built in 1855 and called after Latin and Greek classical authors. They were exceptionally long-lived as they were considered worth rebuilding at the company's works in 1904 when an extra coupled axle was inserted between the other two to enable a bigger and more powerful boiler to be provided.

Some early French single-wheelers are particularly noteworthy. As originally built in 1847 to Stephenson's design, the haycock firebox was overhung, and driving wheels 66 in. in diameter, carrying wheels 39 in., and wheelbase 119 in., were fitted. Larger drivers were soon provided and the back carrying axle placed behind the firebox, thus increasing the wheelbase. When sent to Belgium, they were turned into four-coupled engines, with leading axles as before. Dimensions in their single-wheel stage are shown in the second column, as 2-4-0s in the third. This was not, however, to end their development.

In 1874-6, increased power was aimed at, so a larger boiler with square firebox was provided. In this case the wheelbase was reduced. Dimensions are shown in the fourth column. Thus altered, they did good service on the Mons—Hautmont line for thirty-five more years.

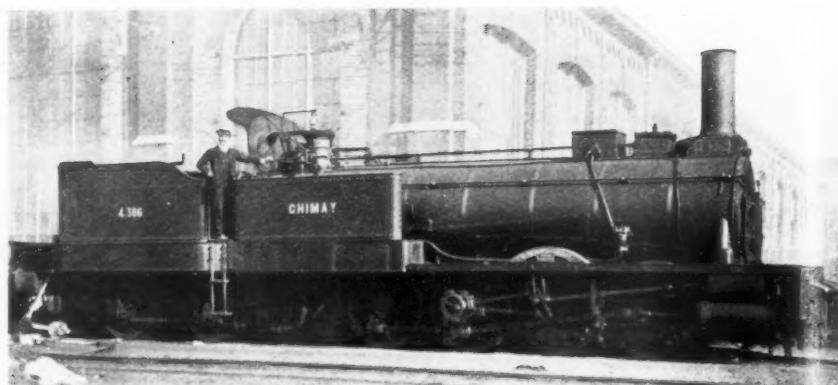
The 0-6-0 goods locomotives were similarly treated. Built in 1846 with a haycock firebox, they were rebuilt with a square firebox, and their pressure was increased from 6·5 to 7·5 kg. (92 to 107 lb.) in 1852-68 and again to 8·5 kg. (121 lb.) in 1875-7. Their dimensions will be found in the fifth column.

When greater power was needed the well-known "Mammoth" type appeared and between the years 1861 and 1881 hauled all the Namur—Liège trains, even passenger trains and expresses. Of these engines the first batches were built by Cockerill in 1857 and the Couillet Works in 1861 and they remained in service until the first decade of the present century. A few of them had square fireboxes with steam domes thereto. In 1882 a steam-tram line was opened to compete with the Nord suburban traffic between Liège and Seraing and was immediately successful. This fact was appreciated by M. Clermont, then Manager of the short Liège—Maastricht Railway, who decided to introduce similar features on his own line. He therefore increased the number of halts, had special stock built and ran so called "tramway trains" which stopped at level crossings as well—the average distance between stopping places was roughly 1 km. Small 15-ton 0-6-0s hauled a couple of light cars at a maximum speed of 36·5 km.p.h. Tickets were sold on the train and collected before the stations.

CHARACTERISTICS OF SOME OF THE OLD NORD-BELGE LOCOMOTIVES

Type	4-2-0 Crampton 1845	2-2-2 1847	2-4-0 1852	2-4-0 1874-76	0-6-0 1852-68	0-6-0 Mammoth 1857	2-4-OT. 1885	0-8 + 4 Engerth —
Built in								
Cylinders, dia.	16 x 20 in.	15 x 22 in.	15 x 22 in.	15·8 x 22 in.	15 x 24 in.	15 x 24 in.	15 x 24 in.	20 x 26 in.
Coupled wheels, dia.	—	5 ft. 6 in.	5 ft. 8 in.	5 ft. 8 in.	4 ft. 1 in.	4 ft. 8 in.	4 ft. 8 in.	4 ft. 1 in.
Total heating surface	992 sq. ft.	787 sq. ft.	781 sq. ft.	871 sq. ft.	894 sq. ft.	988 sq. ft.	916 sq. ft.	2,099 sq. ft.
Grate area	13·7 sq. ft.	9·1 sq. ft.	9·6 sq. ft.	16·1 sq. ft.	14·6 sq. ft.	11·3 sq. ft.	11·8 sq. ft.	20·4 sq. ft.
Boiler pressure in lb. per sq. in.	88	96	125	125	107	96	88	103
Weight of engine in working order	22 tons	21 tons	23 tons	29 tons	27 tons	27 tons	37-42 tons	67 tons

Engerth 0-8-0 + 4 locomotive built by Schneider, of Le Creusot, for the French Nord Railway, and transferred to the Chimay Railway, a subsidiary of the Nord-Belge system



This service, which is believed to have been the first of its kind, was inaugurated on September 25, 1884.

The Nord-Belge made similar arrangements after 1885 for working its Liège and Charleroi suburban services, and for this purpose converted a score of its "Mammoth" locomotives into tanks. To reduce resistance the front axle was uncoupled and the engines thus became 2-4-0 tanks. There were four types which differed slightly from one another, with pressures ranging from 88 to 118 lb. to the sq. in. and weighing in service from 37 to 42 tons. The vacuum brake that had been in use disappeared about 1895 when Westinghouse automatic compressed air brakes were substituted.

For freight services 0-8-0 locomotives built by the

Wiener Lokomotivfabrik in 1881 were purchased from the Südbahn and used on the Liège—Givet line. They conformed to Austrian standard construction, having drivers and cylinders 480 by 610 mm., but their pressure was the highest then to be found on the Nord—10 kg. They weighed 40 tons and have been reconstructed since. But the most noteworthy were the Engerth locomotives, of which Nos. 701-10 were built by Cockerill. With the exception of one having the 0-6-2 + 4 wheel arrangement, they were 8-coupled. They differed only in detail from similar types on the French Nord and Est. The livery of the Belgian Nord locomotives was similar to the French—copper-sheeted firebox, cylinders and chimney rim, black smokebox and dark green sides.



Givet omnibus train composed of old stock leaving Namur station behind a Nord-Belge 4-6-4 four-cylinder compound tank locomotive

The Grand Circle

During 1939 a remarkable experiment in cheap fares connected with the fact that great exhibitions were in progress simultaneously in New York and San Francisco, was made by the Association of American Railroads. Known as the "Grand Circle" trip, it permitted a passenger from any station in the United States, for an expenditure of \$90, to travel to New York, across the continent to San Francisco, or *vice versa*, and back direct to his starting point, without going over any section of line twice. Break of journey facilities allowed such passengers to visit the national parks or other famous resorts at will. As New York and San Francisco are roughly 3,200 miles apart, the minimum distance covered by a "Grand Circle"

ticket, if its holder lived on the direct line between those cities, was 6,400 miles or so, which works out at $\frac{2}{3}$ d. a mile, but from the extremest limits of the Southern States it was calculated that a journey of fully 10,000 miles could be made at the same fare. First class tickets for the circuit cost \$135, or approximately 1d. a mile, and a special Pullman rate of \$45 secured lower berth accommodation, or \$34.50 an upper berth on all journeys. So popular has this concession proved that it is to be reintroduced in 1940 and to remain operative up to October 31. It would be interesting to know how the complex business of dividing up the proceeds of these tickets between all the railways concerned was handled by the American counterpart of our Railway Clearing House.

CHEMICAL CONSOLIDATION OF GROUND IN RAILWAY WORK

Examples of the value of chemical consolidation in the extension of the Central Line tube of the London Passenger Transport Board

By H. J. B. HARDING, B.Sc., M.Inst.C.E., and
R. GLOSSOP, B.Sc., A.R.S.M.

EXCAVATION in deposits of sand and gravel, where these occur below ground-water level, has always presented a difficult problem to the engineer, particularly where the site of the excavation is near the foundation of existing structures. In the past the method employed was to remove the inflowing water from a sump, kept below the general level of the work. It is possible to get down to a considerable depth in this way, so long as the ground to be traversed is not a quicksand so unstable as to flow beneath the points of the runners; but even in coarse deposits the flow of water between the timbers will remove fine sand from the ground, so that settlement may follow with damage to adjacent buildings.

Modern methods of carrying out such work include sheet-steel piling, caissons—with or without compressed air—freezing, ground-water lowering, and injection processes. There is no universal method of dealing with bad ground; each of these methods has its own field of application. By an injection process is understood the saturation of an incoherent mass of sand or gravel with a fluid, which will produce one or both of the following effects:—

(1) The rendering of the ground impermeable to ground water by depositing a solid substance in the spaces between the sand grains.

(2) The increase in the shearing resistance, and hence of the crushing strength of the ground, by the introduction of a substance which will adhere strongly to the grains of sand and greatly increase their cohesion.

The substances used in such processes may be classified as follows:—

(1) Suspensions of solid particles in water, for instance, portland cement, Bentonite, or clay injections.

(2) Emulsions, such as emulsions of bitumen in water.

(3) True solutions, which will react after injection to form insoluble precipitates.

All these materials have given satisfactory results when used under the right conditions, but an attempt to use any one of them without an understanding of its properties may lead to failure.

Thus the use of cement grouts was at first limited to the sealing of water-bearing fissures in rock, to which work it was well suited. Later, attempts were made to inject thin cement grouts into sands and sandy gravels. This led to some expensive failures; for apparently it had not been realised that even moderately fine sands would act as filters to cement suspensions, and therefore could not be consolidated by cement, even though the grouts used were very dilute. Researches on filter media have shown that a particle of cement, of 0·1 mm. diameter, cannot enter a sand whose effective size is less than 1·5 mm.* Hence if the attempt is made to treat a finer sand than this, the cement will be filtered out near the point of injection whatever the consistency of the grout.

Chemical Injections

If it is desired to consolidate sands whose effective size is less than 0·5 mm., chemical injections should be employed. With them no filtering action can occur, and the range of injection depends on the viscosity of the solu-

tions alone. In this article it is proposed to describe some applications of a successful chemical injection process to tube railway construction work in London.

To the best of the writers' knowledge all methods for the chemical consolidation of ground, which have succeeded on a large scale, depend on the precipitation of silica gel from a solution of sodium silicate, by the action of a salt such as calcium chloride. They vary, however, in the methods by which the solutions are applied to the ground.

In the Joosten process the solutions are injected separately, and in the following manner:—

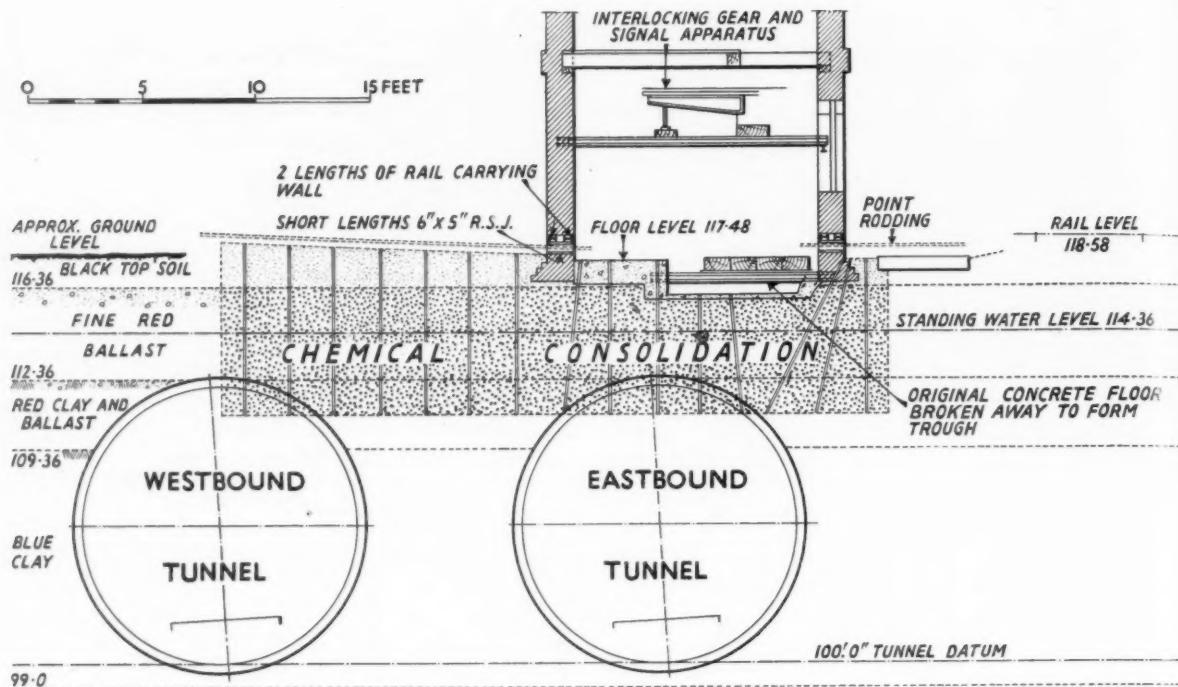
An injection pipe, perforated from its lower end for a length of 2 ft. is driven to the point at which consolidation is required. Sufficient silicate is then injected to spread for a distance of about 1 ft. from the pipe. The pipe is driven ahead a further 2 ft., and a second injection of silicate given. This process is repeated throughout the whole depth of ground to be treated. The pipe is then withdrawn in similar stages, a suitable injection of the second solution being given at each stage. On mingling in the ground the solutions react almost instantaneously, binding the sand grains together and forming what amounts to an artificial sandstone.

The disadvantage of this technique is the expense of driving pipes at such close intervals. The advantage, which makes this the most reliable of all injection processes, is that consolidation is produced exactly where it is required, and there is no danger of the solutions being dissipated over a wide area along an open seam or in a thin stratum of coarse gravel having a high coefficient of permeability.

A number of processes have been evolved in which—by the addition of a third reagent—the reaction between the silicate and chloride solutions is inhibited for a short period. This enables the solutions to be mixed before they are pumped into the ground, and consequently far larger quantities can be injected, and a larger volume of ground treated, from each pipe driven. Where the permeability of the ground varies in depth, as is normally the case, there is no control of the spread of the injection fluid, hence these processes have given the best results only where a very large volume of ground was to be treated, as for instance in the sealing off of porous strata beneath dams. They are not well suited to jobs where a relatively small volume of consolidated ground of considerable strength is required; as in the underpinning of buildings, bridge piers, &c. In such cases the Joosten process has given excellent results, and is always preferable.

The extension of the Central Line tube railway of the London Passenger Transport Board between Bow and Leyton was carried out in water-logged ground by means of compressed air. At Leyton station the lines are carried from the tunnels to the surface in an open cut. On approaching this open cut the two shields of the 12-ft. running tunnels were carried through with a cover of only 4·5 ft. of ballast, with water level almost at the surface. The location of the running tunnels was definitively fixed by the position of the London & North Eastern Railway line, and by existing house property, and the centre line of the eastbound tunnel came directly under the

* K. von Terzaghi: *Proc. Int. Conf. Soil Mechanics*, 1936. Hixson, Work and Odell: *Trans. Am. Inst. Mining*, vol. 73, p. 225.



Cross section through Loughton Branch Junction signal box, L.N.E.R., showing extent of chemically consolidated ground between it and new tube tunnels

Loughton Branch signal cabin. This cabin was of importance as it controlled the junction of the Cambridge (Lea Bridge) and Loughton lines, a number of sidings and the new London Passenger Transport Board's depot; hence it was imperative that while tunnelling beneath it no movement of ground should take place. The cabin was built of 14-in. brick walls, with window openings, and an internal iron and timber frame carried the interlocking gear and signal motion. The foundations were only a few courses of brick footings standing on ballast.

A Foundation Strengthening

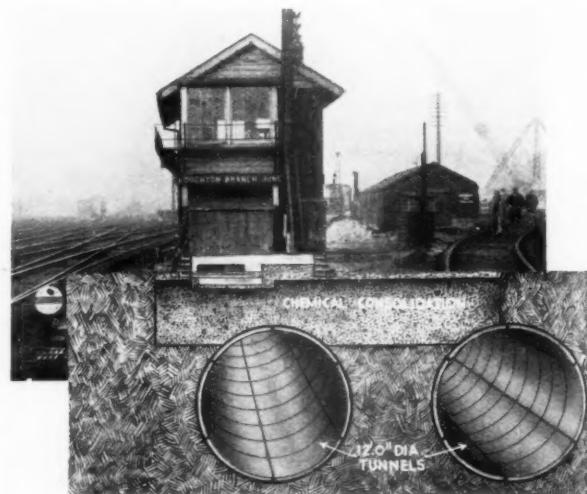
At first serious consideration was given to the question of the construction of a new signal cabin in another position, and gradually transferring the controls to it, but as 12 months was considered necessary for this, the idea was abandoned. In the meantime the ground was investigated by trial holes, and it was found that the cabin rested upon 8 ft. of ballast overlying London clay. After some discussion it was decided that the ballast under the cabin should be solidified all over the area down to clay level by the Joosten chemical consolidation process. In order to carry out this work it was necessary to drive the injection pipes from inside the cabin among the signal mechanism, under the conditions shown in the photograph reproduced.

On the railway side of the cabin was a row of 12 or more 1-in. square steel point rods a few inches apart. The injection pipes had to be driven between these rods, and the work was carried out in several night possessions of the up Loughton track. The work inside the cabin was principally carried on at night in order that the noise of the pneumatic hammers used in driving the pipes should not drown the telegraph and telephone communications. The ground was solidified for a depth of 6 ft. and over an area of 30 ft. x 50 ft. A test hole was sunk to examine the results, which were very satisfactory.

The shield was driven under the cabin in the normal way; a ring of cast iron lining being erected after each

"shove." An air pressure of 3 lb. per sq. in. was maintained in the tunnel, but very little air escaped through the consolidation. Although there was a space of only 4 ft. between the top of the tunnel and the foundation of the cabin, no settlement was observed. Indeed the iron frame supporting the levers was lodged on the brick walls and was not trussed in any way, so that the slightest movement would have made itself felt by affecting the working of the signals. The butt of the telegraph pole, seen close to the signal box in the composite picture reproduced below, actually had to be cut off in the working face of the tunnel.

This piece of tunnelling was unusual in being carried out



Composite photograph and sketch showing the position of new tubes relative to Loughton Branch Junction signal box

in compressed air so near the surface and also in passing at such a shallow depth below such a sensitive structure as the signal cabin without any adverse effects, and is a very interesting example of the assistance that the Joosten process has been in difficult ground conditions.

Chemical Consolidation for Tube Under River

The section of the north-eastern extension of the Central Line beneath the Lea valley was built in exceptionally difficult circumstances. The ground traversed was running sand of the Woolwich series, so that it was necessary to build the tunnels under compressed air. The ground-water level was close to the surface, so, to give additional cover, the tunnels were located directly beneath the embankment of the main line of the L.N.E.R. At river crossings, however, this additional cover did not exist, and the tunnels had to be carried through with only a few feet of water-logged ballast between the cutting edge of the shield and the bed of the river. As a "blow" in such a situation might have had disastrous results, the engineers, Messrs. Mott, Hay & Anderson, decided to make use of chemical consolidation to stabilise the ground and to form an impermeable mat over the tunnels. The mat formed under the City Mill river is shown in the illustrations at the bottom of the page.

Injection pipes were driven from pontoons anchored in the river, the pumps and mixing tanks being situated on the tow-path. The tunnels were carried under



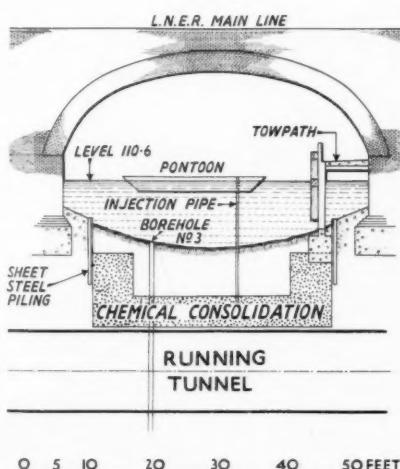
Driving injection pipes from the basement of Loughton Branch Junction signal box

The extent of

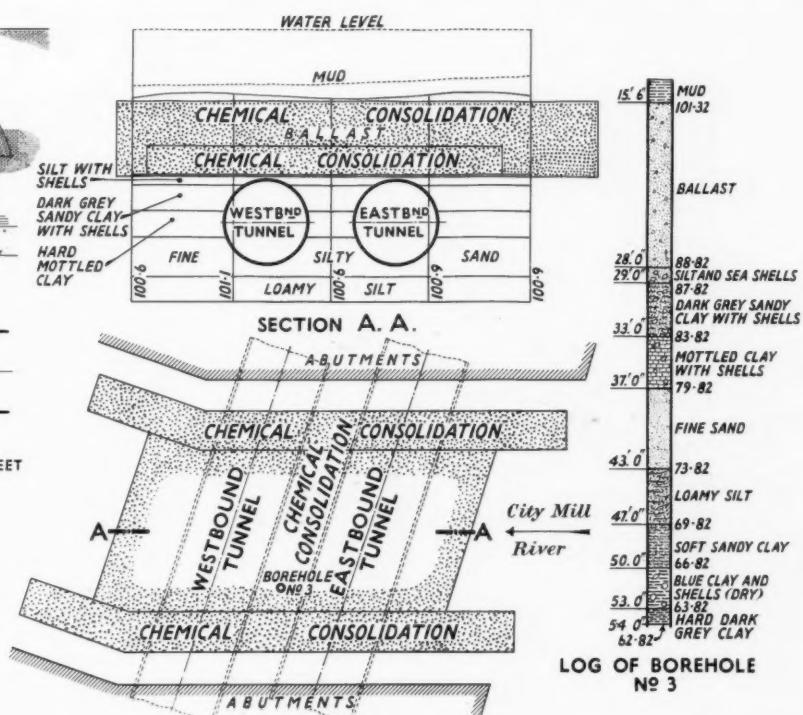
the river without difficulty, and the loss of air through the consolidated ground was negligible.

Chemical Consolidation at Mile End Station

The Central London tube extension, on approaching Mile End station, rises from the deep level to that of the



Chemical consolidation between L.N.E.R. river bridge and new tube tunnels. Injection pipes were driven from pontoon

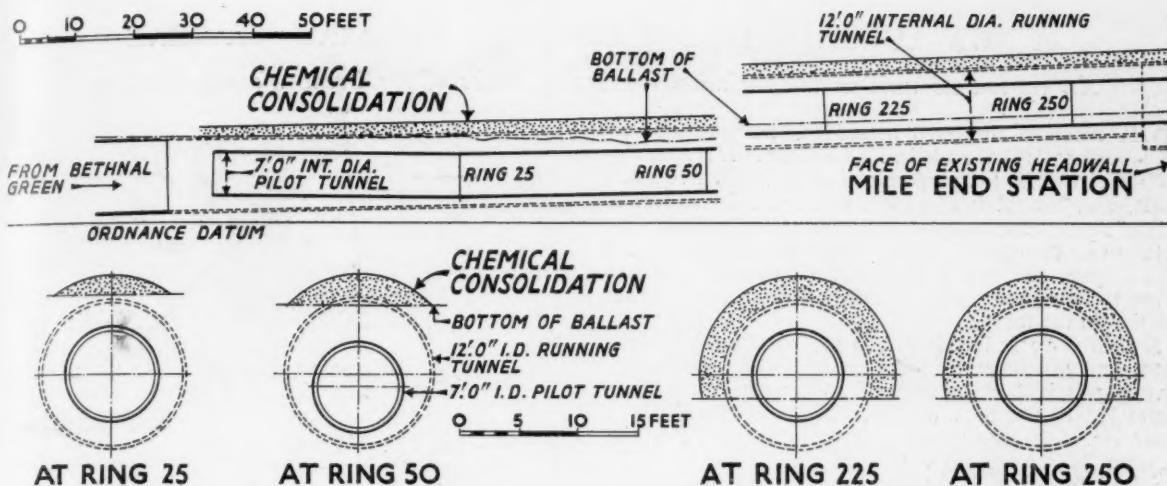




Driving injection pipes from pontoon under L.N.E.R. main-line railway bridge at the City Mill river



Construction of tube at Mile End, showing 12-ft. diameter shield being driven round 7-ft. diameter pilot tunnel. The chemically-consolidated ballast can be seen outside the 7-ft. cast-iron lining through the opening in the shield



Longitudinal and cross sections of new Central Line tube tunnels at Mile End, showing extent of chemically consolidated ground

District Line. In doing so it emerges from the London clay so that in the vicinity of the station the 12-ft. diameter running tunnels penetrate the overlying Thames gravels. There is some ground water standing on the clay surface, though the head is small. As the length to be driven through bad ground was not great, it was decided not to instal compressed-air plant, partly on grounds of expense, and partly because, with such a small cover of porous ground, the loss of air would have been considerable. In these circumstances, the engineers decided on the use of chemical consolidation.

The main shield was stopped while still beneath a cover of clay, and a 7-ft. diameter shield having been built within it, a pilot tunnel was driven ahead as far as the headwall of the station. The segments of this tunnel were

provided with holes through which injection pipes could be driven, and from it a 2-ft. thick hood of consolidated ground was formed over the position of the future 12-ft. tunnel. At a point where the tunnel passed beneath the foundations of a theatre, the column bases of the building were underpinned by means of chemical consolidation, the work being carried out from the tunnel. This consolidation was most successful, and enabled the main tunnel to be driven with speed and safety. The consolidation also sealed off the water completely.

The chemical consolidation works described in this article were carried out by John Mowlem & Co. Ltd., which holds the rights of the Joosten and other specialist processes, and Messrs. Mott, Hay & Anderson were the Consulting Engineers.



Two views at Euston station during the recent traffic hold-up due to severe weather. That on the left shows the departure board. The arrival indicator (on the right) shows trains as much as 440 minutes late (see page 165)

A NEW LOCOMOTIVE BOILER-SHELL DRILLING MACHINE

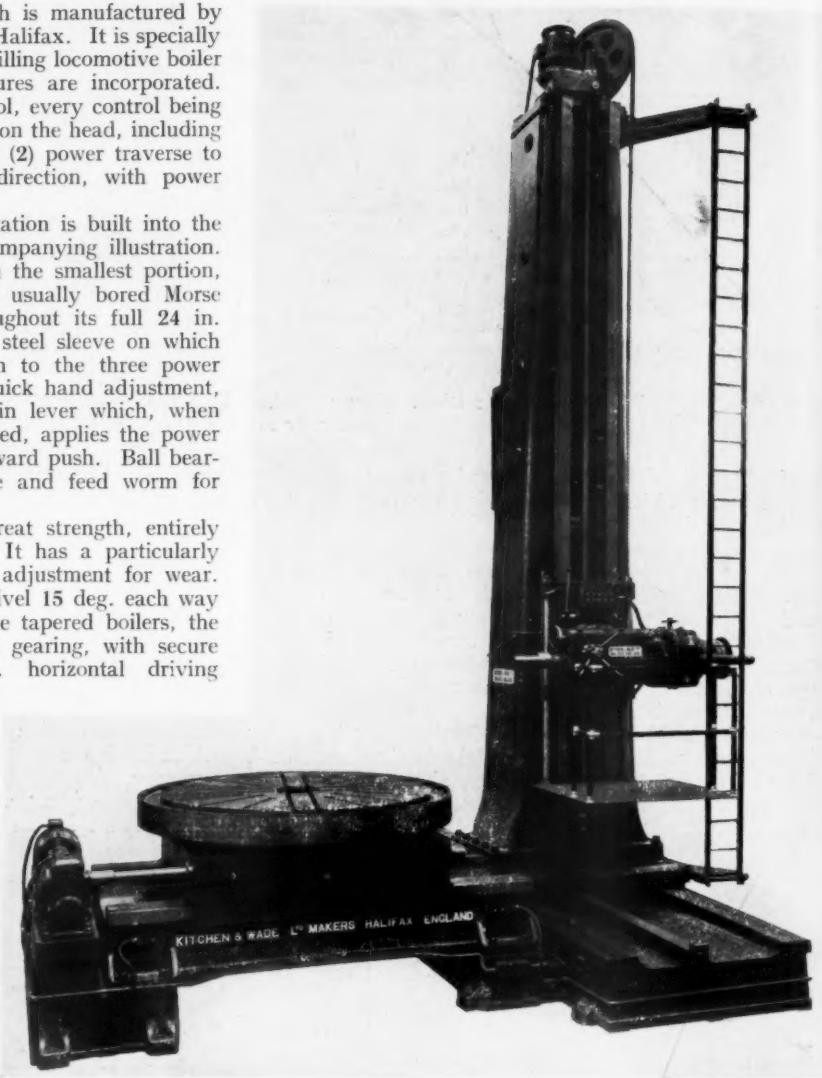
An up-to-date unit in the Swindon locomotive works of the Great Western Railway

THE machine illustrated herewith is manufactured by Kitchen & Wade Limited, of Halifax. It is specially designed for the purpose of drilling locomotive boiler shells, and several interesting features are incorporated. One of these is the centralised control, every control being obtained on the operator's platform on the head, including (1) all speed and feed changes and (2) power traverse to column, head and table in any direction, with power rotation to the table.

A clearly marked push button station is built into the head, and can be seen in the accompanying illustration. The spindle is 2 in. in diameter in the smallest portion, increasing to the nose where it is usually bored Morse taper No. 4; it is supported throughout its full 24 in. traverse by a large diameter hard steel sleeve on which the feed rack is cut. In addition to the three power feeds, the spindle has a fine and quick hand adjustment, the latter being made by a four-pin lever which, when the desired position has been reached, applies the power feed instantaneously by a slight forward push. Ball bearings are fitted to both the spindle and feed worm for taking the thrust when drilling.

The head is a box casting of great strength, entirely enclosing all running mechanism. It has a particularly long bearing on the column, with adjustment for wear. The front portion is arranged to swivel 15 deg. each way from the horizontal to accommodate tapered boilers, the swivelling being obtained by worm gearing, with secure locking provision. The $7\frac{1}{2}$ h.p. horizontal driving motor is built in; the driving gears are of hardened nickel chrome steel mounted on ball bearings and lubricated by an internal oil pump. Easy reading charts state the lever positions for various sizes of holes; the speed and feed changes are foolproof, and conflicting gears cannot be engaged. The operator's platform, of the collapsible type, is carried on the head, and every possible change is obtained without the operator having to leave his drilling position. The column is of unusual design, being of box construction, well ribbed, and tapering to the wide-spread foot, which, in turn is securely bolted to the sliding base.

The main traverse bed measures 5 ft. across the ways and is designed specially to meet the stresses set up when drilling at heights up to 15 ft. above the table which has a diameter of 7 ft. The in and out traverse bed is also 5 ft. wide and the reduction and worm gearing operating the movement run in oil baths. Automatic pressure lubrication to the ways comes into operation when the traverse motors are engaged. Right or left hand machines can be supplied, and the vertical and horizontal traverses to the head can be modified to suit any practical requirement. All slideways are provided with automatic pressure lubrication, and safety devices are embodied in every motion both mechanical and electrical to prevent damage by overrunning. The driving motors, as indicated above, are of $7\frac{1}{2}$ h.p. and the four traverse motors each of 5 h.p. The machine is capable of drilling up to 2 in. diameter from the

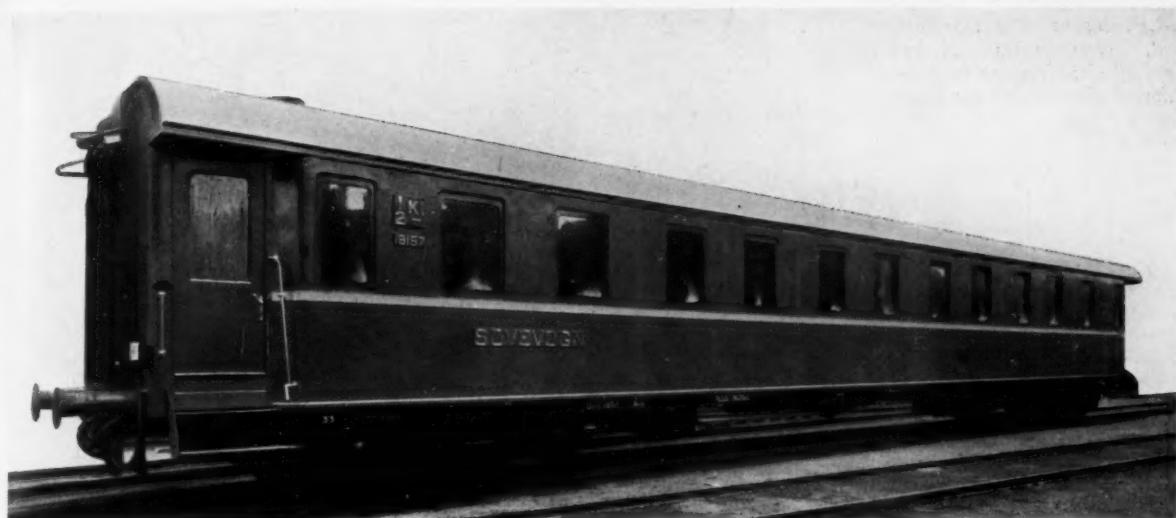


General view of new locomotive boiler-shell drilling machine

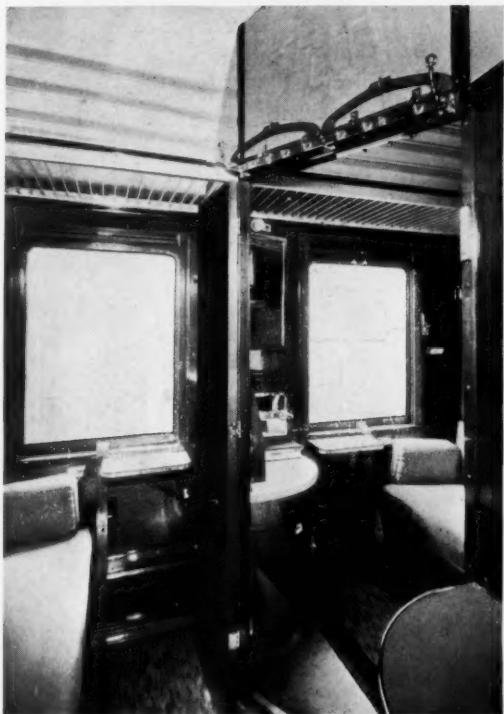
solid in steel, but when made with a wider range of speeds and feeds opening out, and light boring up to 6 in. dia. can be dealt with.

The manufacturer points out that the swivelling motion to the head is not absolutely essential, and the machine can be made without this feature if desired. In view of the modern design of locomotive boilers, it is, however, well worthy of careful consideration. The machine illustrated was supplied to the Great Western Railway at Swindon, and is one of a batch of four machines for well-known locomotive works in this country and in the Colonies. The operating results have proved that a single spindle machine running up to the capacity of today's high-speed drills, is considerably greater than the multi-spindle type, where so many changes and adjustments were necessary, and the speeds and feeds had of necessity to be reduced on account of the two or three spindles.

New Norwegian All-Steel Welded Sleeping Cars



Above : Exterior of one of the cars. Air for forced ventilation is drawn in for filtering through the grid seen in the body side over the further battery box



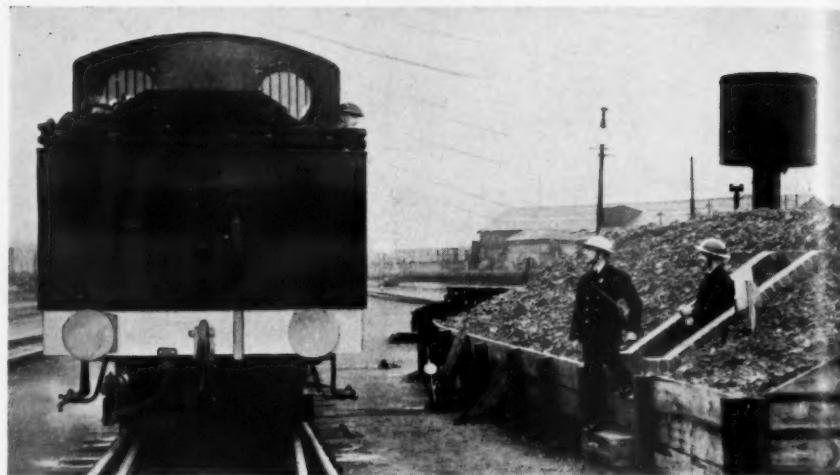
Left : Adjacent communicating compartments in daytime. Right : Compartment with two beds made up as seen from the communicating compartment

These 22-berth sleeping cars are equipped with forced ventilation of filtered fresh air; the temperature is regulated by a thermostat, but hand-controlled steam and electric heating is retained in case of failure of the system. The cars carry 44 Imperial gallons of cold water and 6·5 gallons of hot. The window frames are wooden again, after a short trial with aluminium frames. The luggage racks over the windows are of Eloxal (electrically oxidised aluminium). By the adoption of modern design and materials, and welding instead of riveting, the weight of these cars has been kept down to 41 tons

(See also Overseas paragraph on page 144)

British Railways and the War—5

Right : Goods yard staff leaving an A.R.P. dugout in a marshalling yard. Note buffers and buffer beam of shunting engine painted white to show up in the blackout



Left : Hooded locomotive headlight

Right : Fogman's "devil" with screening to comply with A.R.P. regulations. The ordinary type is seen in the foreground



RAILWAY NEWS SECTION

PERSONAL

Mr. E. C. Cookson, A.C.G.I., B.Sc. (Eng.), A.M.I.C.E., who, as announced in our issue of December 22, has been appointed Divisional Engineer, Newport, Great Western Railway, was educated at St. Paul's School, West Kensington, and afterwards at the City & Guilds Engineering College of the Imperial College of Science and Technology, South Kensington, where he graduated as an Associate of the City & Guilds of London Institute and B.Sc. (Eng.). In 1927-28 he was



Major E. C. Cookson

Appointed Divisional Engineer, Newport, Great Western Railway

awarded a Miller prize by the Institution of Civil Engineers for a paper on the reconstruction of Paddington goods station. Mr. Cookson entered the service of the Great Western Railway Company in September, 1923, in the New Works Department of the Chief Engineer's Office, and was engaged in the preparation of drawings in connection with various important works. Later he became Assistant Resident Engineer on constructional works at Newport goods and passenger stations, Cardiff Queen Street and Bute Road stations, Swansea High Street station, Briton Ferry hump yard, &c. In 1925 he joined the staff of the Divisional Engineer at Gloucester and in 1926 returned to the New Works Department at Paddington. In February, 1929, he was appointed Assistant to the Divisional Engineer, Shrewsbury, and under him was responsible for the Morpeth goods depot alterations at Birkenhead. In July, 1933, he was appointed Assistant Divisional Engineer at Plymouth and in January, 1935, was made Assistant Divisional Engineer,

London Division, from which position he has now been promoted to be Divisional Engineer, Newport. On the formation of the Transportation Units, Royal Engineers Supplementary Reserve, in 1925, Mr. Cookson was given a Commission in a Railway Construction Company, Royal Engineers, in which he holds the rank of Major. He was mobilised on September 1, 1939, and at the present time is on active service with the B.E.F.

Mr. W. H. Myers, Chief Electrical Engineer, New South Wales Government Railways, recently returned from a business visit overseas and resumed his normal duties.

We regret to record the death at the age of 68 of Mr. E. Shephard who was Treasurer of the Southern Railway from 1925 to 1932. Mr. Shephard began his career in the Traffic Department of the London & South Western Railway in 1885. He served at various stations and was on the clerical relief staff until 1897, when he was transferred to the Pay Office, Treasurer's Department. He became Chief of the Pay Office in 1919 and in 1924 was made Assistant to the Treasurer. Mr. Shephard was appointed Treasurer in March, 1925, and retired from this position in 1932. After his retirement it was decided not to make a fresh appointment to the Treasurership but to create the position of Chief Cashier.

IRISH RAILWAY CLEARING HOUSE

Sir Walter Nugent, Bart., was unanimously re-elected Chairman of the Committee for 1940 at a meeting of the Irish Railway Clearing House Committee on January 24.

The New South Wales Government has re-appointed Mr. T. J. Hartigan, Commissioner for Railways, and Mr. F. C. Garside, Assistant Railway Commissioner, to their present positions for a further period of seven years from December 29 last. Mr. Hartigan was born in 1878 and joined the railway service as a junior clerk in 1892. He was appointed Railway Commissioner in 1932. Mr. F. Garside began his railway career in 1903.

We regret to record the death on January 20 of Mr. Charles Edward Drewett at the age of 69. Mr. Drewett was formerly Manager & Secretary of the Lynton & Barnstaple Railway which was absorbed by the Southern Railway in 1923, and was closed to traffic on September 29, 1935.

Mr. Oscar Harmer, whose death we recorded in our issue of October 27, left estate valued at £112,006 (net £102,453). Mr. Harmer was a Director of Alfred Herbert Limited.

Mr. Walter George Chapman, who has been in charge of the Central Enquiry Bureau of the Great Western Railway since 1932, retired on January 25 on account of ill health. Mr. Chapman was educated at Thetford Grammar School and Kendrick School, Reading. He entered the service of the Great Western Railway in 1896, and for eight years was engaged at Reading goods station and in the District Goods Manager's Office, Reading. In July, 1904, Mr. Chapman was transferred to the General Manager's office at Paddington and gained experience in



Mr. Walter George Chapman

Central Enquiry Bureau, G.W.R.
1932-1940

various sections of that office for a period of 25 years. In 1929 he went to the Publicity Department, and in 1932 took charge of the Central Enquiry Bureau. Mr. Chapman was the first G.W.R. student to be awarded the Brunel medal of the London School of Economics (University of London), which he gained in 1908. He was also a joint winner of the Lord Rosebery prize in 1916. From 1909 to 1929 Mr. Chapman was Ambulance Centre Secretary to the G.W.R., and was for some years railway representative on Headquarters Committees of the Order of St. John. He was admitted as a Serving Brother in 1921 and in 1931 became an Officer. During the last war he was commissioned as a Lieutenant in the R.N.V.R. (attached R.N.A.S.); later he was transferred to the R.A.F. and was demobilised with the rank of captain. Mr. Chapman is widely known as author of "Track Topics," "The 10.30 Limited," "The 'King' of Railway Locomotives," and "The Cheltenham Flyer," and other

February 2, 1940

**Mr. J. L. B. Lindsay**

Chief Staff Officer, London Passenger Transport Board, 1933-1940

popular but authoritative books on railway subjects issued by the G.W.R., the total sales of which have exceeded 200,000 copies. The popular slogan "Go Great Western" was adopted as the result of a suggestion put forward by Mr. Chapman to the G.W.R. Suggestions Committee. He was responsible in 1922 for a successful staff campaign on the G.W.R. to ensure economy in the consumption of stores. In a folder addressed by the General Manager to every member of the staff the price of eleven articles of stores in daily use was given and every individual employee was asked to prevent waste. The result in the first year was a six-figure saving in the articles specified in the folder, apart from a general reduction in the consumption of stores. The idea was so successful that it was adopted by other railways and in-

dustries. For nine years Mr. Chapman produced the short chatty "talks" which were a popular feature of G.W.R. restaurant car menus up to 1932.

Mr. J. L. B. Lindsay, whose retirement from the position of Chief Staff Officer, London Passenger Transport Board, we have to announce, joined the staff of the Central London Railway Company in 1895, and became Assistant Secretary in 1896. Between 1913 and 1928 he was Assistant Secretary & Treasurer to the Underground Electric Railways Co. of London Ltd. and its constituent railway companies, the London General Omnibus Co. Ltd. and the Associated Equipment Co. Ltd. In 1931 Mr. Lindsay was appointed Chief Staff Officer and retained the position on the formation of the London Passenger Transport Board in 1933.

Mr. G. H. Brooks has been appointed Chief Staff Officer, London Passenger Transport Board. He entered the service of the London County Council soon after the Council began to operate tramways, and he worked directly under the then General Manager, the late Mr. Alfred Baker, who subsequently became General Manager at Birmingham. Mr. Brooks acted as Personal Assistant to Mr. A. L. C. Fell (General Manager until 1924) for several years. In the 1914-1919 war he joined the Honourable Artillery Company and saw considerable service in France as an officer in the Machine Gun Corps. He was appointed Accountant & Chief Clerk in the London County Council Tramways Department in 1926 and four years later became Commercial Manager and Deputy to the General Manager (Mr. T. E. Thomas), and assumed the same position in the Tramways Department of the London Passenger Transport Board on its formation in 1933. He was appointed General Superintendent (Road Transport) in 1936, and in 1939 was made Deputy Chief Staff Officer. Mr. Brooks is a member of the council of the Institute of Transport.

Mr. F. K. Pelley, District Goods Manager, Birmingham, South Staffordshire, & East Worcestershire, G.W.R., retired on December 31 after more than 50 years' service. He entered the railway service in August, 1889, and spent 15 years in the Birmingham & South Staffordshire district. He joined the Chief Goods Manager's staff at Paddington in 1905, as an outdoor representative. In this capacity he attended important agricultural shows, represented the company on the East Coast on the question of the Lowestoft and Yarmouth fisheries, and in Cornwall in connection with the broccoli traffic. Subsequently he was engaged on matters relating to the reorganisation of the clerical staff and general working. In March, 1924, Mr. Pelley was appointed Assistant to the District Goods Manager, Birmingham, South Staffordshire & East Worcestershire District, and in November, 1925, became District Goods Manager for the same district. In filling this

**Mr. G. H. Brooks**

Appointed Chief Staff Officer, London Passenger Transport Board

important post his management has been productive of the modernising of stations and equipment, and the increase in storage accommodation to meet the needs of distributing traders. Among Mr. Pelley's many activities are membership of the Institute of Transport, the Birmingham Chamber of Commerce, and the Birmingham Coal & Iron Exchange. He is President of the Great Western Railway Lecture & Debating Society, Birmingham, Vice President of the Great Western Railway Staff Association, and a member of the Safety First Council.

Mr. Horace Janes has been elected Honorary Secretary of the Permanent Way Institution in succession to Mr. Stamford E. McLewin who, as recorded in our issue of January 26, has retired. Mr. Janes, who is a member of the

**Mr. F. K. Pelley**

District Goods Manager, Birmingham, G.W.R., 1925-1939

**Mr. H. Janes**

Appointed Honorary Secretary, Permanent Way Institution

Chief Engineer's staff of the Southern Railway, began his railway career with the South Eastern & Chatham Railway in 1903, and in July, 1904, entered the District Engineer's Office at Tonbridge. In March, 1917, in the absence of the District Engineer on Active Service, he was appointed Assistant and had charge of the district until 1919. At the grouping of railways in 1923 he transferred to the London East Divisional Engineer's Office at London Bridge under Mr. C. A. G. Linton. When the extensive Southern Railway suburban electrification scheme was put in hand, Mr. Janes was selected by Mr. G. Ellson to supervise and carry out the outdoor work in connection with the installation of conductor rails, track bonding, preparation of routes, and laying of high-tension cables, &c. On the completion of this scheme in 1926, Mr. Janes was attached to Waterloo and continued the same work on subsequent extensions until the opening of the latest section to Gillingham and Maidstone in July last. Mr. Janes joined the Permanent Way Institution in 1908, and was elected Corresponding Secretary of the London Section in 1912, a position he held for 25 years. In 1934 he was appointed Assistant General Secretary and as such carried out the arrangements for the jubilee convention in London in 1934, and the visit to Germany in 1938.

G.W.R. APPOINTMENTS

The following appointments are announced by the company:—

Solicitors Department

(To date from January 8)

Mr. C. H. Whitelegge, Assistant Solicitor and Parliamentary Agent, to be Deputy Solicitor and Parliamentary Agent.

Mr. A. E. Bolter, Assistant, Conveyancing Department, to be Chief Conveyancing Assistant.

Goods Department

(To date from January 1)

Mr. G. Cornish, District Goods Manager, Liverpool, to be District Goods Manager, Birmingham, *vice* Mr. F. K. Pelley, retired.

Mr. D. Blee, District Goods Manager, Shrewsbury, to be District Goods Manager, Liverpool.

Mr. J. F. Anstey, Assistant District Traffic Manager, Plymouth, to be District Goods Manager, Shrewsbury.

Mr. F. M. Davis, Assistant District Goods Manager, Paddington, to be Assistant to District Traffic Manager, Plymouth.

Mr. F. G. Poultnay to be Chief Clerk, District Traffic Manager's Office, Plymouth.

Engineer's Department

Mr. A. N. Butland, Resident Engineer, Greenford, to be Assistant Divisional Engineer, Taunton.

Dr. Ruchan Akinci, Head of the Commercial & Tariffs Section, and Mr. Sedat Etker, Chef du Service de la Traction, two officers of the Turkish State Railways, Ankara, are at present on a visit to this country.

The Permanent Way Institution

Annual winter meeting

The annual winter meeting of the Permanent Way Institution was held at the Central Hall, Westminster, on Saturday last, when the President, Mr. F. E. Harrison, occupied the chair, and was supported by Messrs. R. Carpmael, S. L. Murgatroyd, W. K. Wallace (Past-Presidents), and a good attendance of members.

Opening the proceedings, the President read a message of greeting from Major-General Gilbert S. Szlumper, Director General of Transportation and Movements, who expressed appreciation of the valuable work being done by members of the institution in the Railway Construction Companies of the Royal Engineers with the armies in France and could assure the Permanent Way Institution that its traditions were being worthily upheld.

The President announced the important change that was being made in the election of Mr. H. Janes as Honorary Secretary in place of Mr. S. E. McLewin, who was resigning that office. Mr. Janes was well qualified to fill the post, having had considerable experience of the management of the institution's affairs during his 31 years of membership. He had been a council member for 28 years and had fulfilled the duties of Assistant Secretary since 1934. The President then asked the retiring Secretary, Mr. S. E. McLewin, to accept the presentation of a cheque as a mark of appreciation of his sterling services to the institution during the 37 years he had occupied that office. Mr. Harrison read letters received from Messrs. G. Ellson and John Miller, Past-Presidents, expressing appreciation of the services rendered by Mr. McLewin.

Mr. S. L. Murgatroyd, senior Past-President, mentioned that Mr. McLewin had first become Secretary in 1897, the year in which he (Mr. Murgatroyd) had occupied the presidential chair. In those days the institution had to face considerable difficulties, its activities being regarded with suspicion and disfavour, and its continued existence was at times a matter of uncertainty. Mr. McLewin first held office for 1897 only, but in 1904 was again elected Secretary, and had filled the post with efficiency and distinction ever since. In the intervening years he had seen the membership grow from 568 to 3,300, and with this growth his work had increased correspondingly.

Mr. W. K. Wallace (President, 1935-37) referred to his association with Mr. McLewin dating back to 1921, when, as a sectional Corresponding Secretary, he had received much kindness and assistance from him. When, fourteen years later, he was honoured with the presidency of the institution, he had again experienced the value of Mr. McLewin's assistance. Mr. Murgatroyd had referred to the institution's difficulties in early days, and

it said much for Mr. McLewin's zeal and efficiency that those stormy days had been weathered.

Mr. R. Carpmael (President in 1930-32 and 1938) said that Mr. McLewin possessed all the necessary qualities of an efficient secretary, aptitude for business, capacity for collar work, realisation of his dependency upon the assistance of others, and a sense of humour. Mr. McLewin might be likened to the gardener, who, having tended the plant in its early days, had lived to see it bear fruit in abundance.

Others who paid tribute to Mr. McLewin's services were Mr. J. T. Cooke, who had been Assistant Secretary of the Leicester Section in 1904 and 1905; Mr. J. H. Kirk, the institution's Vice-President for Wales, who said that he had become a member in the year Mr. McLewin became Secretary; Mr. C. H. Gibson, who spoke for the Exeter and West of England Section, and Mr. W. A. Wilcox. The latter likened Mr. McLewin's passing into retirement to the passing of some National Institution, such as the Crystal Palace. The members would sadly miss his wisdom, guidance, and unfailing cheerfulness, which had done so much to raise the institution from obscurity to its present flourishing state, with its great membership and its exercise of world-wide influence.

Mr. McLewin, tendering thanks, said that the previous speakers had not exaggerated the difficulties associated with the institution's early days. In great contrast was the position of honour which it occupied today, not only in England but abroad. The *Journal* was a valued publication, for which there was a wide demand outside the membership of the institution. Examples of this were requests for copies received from the Congress Library at Washington, the National Library of Poland at Warsaw, and the University of Illinois. Mr. McLewin considered that the growth and progress of the institution had been due to its aims and objects being inherently good, containing nothing which was prejudicial to good discipline. He would always retain the most pleasant recollections of his long term of office.

Mr. Harrison was re-elected President for the current year.

LIGHT ALLOY PLANT.—High Duty Alloys Limited is to put down a new plant at Distington, Cumberland, comprising forging, stamping and extension equipment and a laboratory. The site has an area of 50 acres and the eventual employment capacity will be 1,000 men and boys. It is hoped to have part of the plant in production by August. Negotiations are understood to have been completed for the erection of another factory at Distington, by International Alloys Limited.

TRANSPORT SERVICES AND THE WAR—23

Reading lights in Lancashire electric trains—The new G.W.R. timetable—Reduced train services in Germany—Roumanian-German transit traffic

Once again the War Office has issued a warning to the public that in various localities sentries are posted to guard vulnerable points. These sentries have orders to challenge all persons approaching their posts, and to fire in the event of the challenge not receiving a response. Anyone suffering from deafness is advised to avoid any military point at which a sentry is known to be posted.

Reduced Railway Fares for Wives of Naval Ratings

Under normal arrangements, railway tickets at reduced rates are issued to wives of Naval ratings and Royal Marines if at the time of booking they surrender Form D.N.A. 866, which is obtainable either from the ship or establishment in which the man is serving, or from the Home Depot or Marine Division when the man is serving abroad, on application being made personally or in writing by the wife. This is still the regular procedure under Admiralty Fleet Orders. In time of war, however, when a ship comes into port for a short stay, a rating may send a telegram to his wife asking her to join him at once, and there is not time to carry out the ordinary routine for obtaining Form D.N.A. 866. In such circumstances the railway companies have agreed to issue tickets to wives at the reduced rate without the surrender of Form D.N.A. 866 provided that the telegram from the husband is surrendered and the marriage allowance order book is produced at the time of booking. Incidentally, such telegrams must not mention the name of the ship.

Repatriating 1,500 Swiss

Many letters of appreciation have been received by the Southern Railway Company from different sources in connection with the management and movements of trains and ships occasioned by the war. The following letter was sent by the Swiss Minister to the Minister of Transport :—

"Sir,—Shortly after the outbreak of hostilities the Swiss Legation were entrusted by their Government with the repatriation of some fifteen hundred of their compatriots from the British Isles. And if, as was the case, it was possible to effect this repatriation in spite of the manifold difficulties to be surmounted and the uncertainty of prevailing conditions, this was due in no small measure to the courtesy and untiring assistance of the management of the Southern Railway Company and the willing co-operation of their staff. In pre-war days the same company rendered Switzerland considerable service by making the country known to the English people as a holiday resort, and the Swiss Government would not fail to express their high appreciation of the attitude taken in this respect, and their gratitude for the help extended to their compatriots during the first weeks of the war. I should esteem it a favour if you could kindly consent to convey this expression of appreciation to the right quarters. I have the honour to be Sir, your obedient servant,—C. R. PARAVICINI."

The Minister of Transport, in transmitting this to the Chairman of the Southern Railway, added his own tribute as follows :—

"My dear Holland-Martin,—I am delighted to forward to you a letter which I have received from the Swiss Minister, together with a copy of my reply. I should like to add an expression of my own appreciation of the efforts of the Southern Railway Company in this direction.—Yours sincerely,—EUAN WALLACE."

Reading Lights for Lancashire Electric Trains

The L.M.S.R. announces that approval has now been obtained for schemes of interior lighting for the suburban electric services radiating from Liverpool and Manchester, and travellers on these routes will have reading lights as soon as the necessary equipment can be installed. As, however, the approved scheme involves the fitting of approximately 8,600 lights in 400 coaches, and as supplies of metal lampshades and other blacking-out equipment are not always readily available, it may be some time before all the trains are equipped. The services affected comprise those between

Manchester and Altrincham (L.M.S.R. and L.N.E.R. joint Line); Manchester and Bury; Liverpool and Ormskirk; Liverpool and Southport; and the Wirral District (Liverpool and New Brighton and West Kirby). Both saloon and compartment types of stock are involved, and separate schemes have been approved for each type. The special lighting fitted to the new electric rolling stock on the Liverpool-Southport lines of the L.M.S.R. is illustrated and described in the *Electric Railway Traction Supplement* accompanying this issue.

The New G.W.R. Timetable

From Monday, February 5, a completely revised train service is to operate over the Great Western system, and new timesheets and a new timetable book are being published. The latter, which is of the customary G.W.R. size and shape, is the first re-issue since the war emergency book of September 25, 1939, and in addition to the long-distance train services which have been restored in the interim, the new book shows a number of further reinstatements of considerable importance, as well as other improved facilities. On the West of England main line the principal changes are in the up direction. The 11 a.m. from Penzance to Paddington is diverted from Taunton to the Westbury route, calling at Westbury and Reading, and arrives at 7.20 instead of 8.27 p.m.—an acceleration of 67 min.; the 8.25 a.m. from Plymouth (Millbay) to Paddington similarly travels via Westbury instead of Bristol, calling at Westbury and Reading, and arrives at 1.55 instead of 2.38 p.m.—43 min. acceleration. The 12 noon from Penzance to Paddington, already running via Westbury, starts at 1.15 p.m., is accelerated throughout, covers the 142.9 miles from Taunton to Paddington in 2 hr. 49 min. (50.7 m.p.h.), and arrives at 9.15 instead of 9.10 p.m., a total gain of 79 min. In the reverse direction the 1.15 a.m. down is accelerated 20 min. to Plymouth North Road, arriving at 6.40 a.m.; the 10.30 a.m. Cornish Riviera Limited gains 9 min., reaching Plymouth in 4 hr. 51 min.; and a new express from Paddington at 5 p.m., calling at Reading and Bath, takes over the Plymouth portion from the existing 4.15 p.m. train, and reaches Plymouth North Road at 11.15 p.m., only 13 min. later than before and an acceleration of 32 min. The Westbury route, which carried only one daily West of England express in the September 25 timetable, now has seven, at 1.15 a.m., 10.30 a.m., and 1.30 p.m. from Paddington, and into Paddington at 1.55, 5.30, 7.20 and 9.15 p.m. In all the average journey time of the nine best trains between Paddington and Plymouth is exactly one hour less than the average of the September 25 timetable, and the average Paddington—Penzance time has been curtailed by 78 min.

On the Bristol line, in addition to the new 5 p.m. down Plymouth express, already mentioned, a valuable restoration is the 9 a.m. from Bristol, calling only at Bath to Paddington, and arriving at 11.30 a.m. On the South Wales main line all the normal services had already been restored, but some accelerations have been made, the 11.55 a.m. from Paddington to Swansea and the 6.30 a.m. from Swansea to Paddington being speeded up by 15 min., while the 8.55 a.m., 11 a.m., and 5.30 p.m. from Swansea each gain 10 min. To Gloucester and Cheltenham, the 10.45 a.m. semi-fast from Paddington is restored, and an early evening service from Paddington is given by the 5 p.m. Plymouth express instead of the 4.15 p.m. train, with an acceleration of 15 min. A mid-afternoon express from Cheltenham at 2 p.m., and Gloucester at 2.20 p.m., is a restoration in a measure of the Cheltenham Flyer service, and is due at Paddington at 5.10 p.m., non-stop from Swindon, but in 95 min. instead of the "Flyer's" normal 65 min. On the Birmingham line the 4.5 p.m. from Paddington to Shrewsbury reappears, and in the up direction both the 7.40 a.m. from Shrewsbury (9 a.m.

from Birmingham, due Paddington 11.30 a.m.), and the 4 p.m. from Wolverhampton (4.30 p.m. from Birmingham, due 7 p.m.) are restored to the timetable, completing the entire normal service except the 7.10 p.m. down. New services are also given from Paddington to Birmingham and Wolverhampton via Oxford at 8.30 a.m., 12.45 p.m., 1.45 p.m., and 3.20 p.m. The Worcester line has a restored afternoon express service at 2.8 p.m. to Oxford and Paddington, taking 2 hr. 54 min., and the 8.55 a.m. up is accelerated 24 min. to an overall time of 2 hr. 53 min.; the 4.45 p.m. down gains 11 min. and is allowed 2 hr. 55 min. Across country the express diesel railcar service is reinstated once daily in each direction between Birmingham and Cardiff, at 9.10 a.m. from Birmingham, reaching Cardiff at 11.52 a.m., and at 4.45 p.m. from Cardiff, reaching Birmingham at 7.25 p.m. Another express diesel service to reappear is between Bristol and Weymouth, leaving Bristol at 8.10 a.m. and reaching Weymouth at 10.15 a.m. (an acceleration of 68 min. on the previous 8.12 a.m. stopping service), and returning at 2 p.m., with a Bristol arrival at 4.15 p.m. Other diesel cars recommence running on local stopping services, especially in the Oxford, Worcester, and Malvern area.

The comfort of travel is increased by a further widespread reinstatement of restaurant and buffet cars, particularly the latter, which are to be attached to the 8.30 a.m. from Paddington to Wolverhampton via Oxford, 9.5 a.m. to Bristol, 9.15 a.m. to Weston-super-Mare, 4.5 p.m. to Wolverhampton, 4.45 p.m. to Worcester, 6 p.m. to Weymouth, and 7.55 p.m. to Cardiff, with corresponding up trains. The restaurant cars on the 10.35 a.m. and 1.15 p.m. from Paddington will run to Penzance instead of to Paignton, and the 5 p.m. restaurant service to Plymouth will be additional; the 1.45 p.m. service from Paddington will be diverted to Wolverhampton instead of Worcester, and there will be a restaurant car as far as Westbury on the 12.30 p.m. from Paddington to Weymouth. A total of 20 restaurant car and 7 buffet car trains will thus work daily out of Paddington, with a corresponding 27 in the up direction, making, with the through Liverpool-Plymouth expresses in each direction a total of 56 daily expresses on the G.W.R. provided with restaurant facilities. A first class sleeping car on the 12.55 a.m. from Paddington to Swansea, and the 6.50 p.m. from Neyland to Paddington, is added to the cars already operating between Paddington and Plymouth, and Paddington and Penzance. In addition to the long-distance improvements of service already enumerated, numerous alterations and additions to services are made over shorter distances and branches all over the system.

Fishguard—Rosslare Service Suspended

The passenger service between Fishguard and Rosslare has been suspended temporarily since January 15, as was indicated by the paragraph in our January 19 issue, which recorded the official announcement of the suspension of the connecting trains in Eire. The *Irish Times* of January 17 said: "Although the passenger service has been suspended, we learn that the boats are running as usual and that Customs work and everything else goes on very much the same." It is hoped that the overhaul of the ss. *St. Patrick* will be completed within three or four weeks.

German Train Services

Germany, in common with many parts of the European Continent, has suffered since the beginning of the year from severe weather conditions, and steps have been taken to reduce unnecessary travel so as to enable the Reichsbahn to deal more easily with coal and other essential traffics. Nearly all important waterways are at present frozen, and these normally handle some 35 per cent. of the coal traffic. The German radio announced the suspension from Monday, January 15, of various kinds of cheap return tickets, including Sunday return and holiday tickets, reduced tickets for parties and for the S.A. and other organisations, and round-trip tickets. Cheap tickets continue to be issued, however, to those visiting wounded soldiers and attending funerals of Servicemen killed in action. A further step designed to reduce unnecessary travel and overcrowding in fast trains

was the increase from January 15 of "D" and "E" train supplements; the new prices are treble those applying heretofore. Moreover, notice has been given that the 60 per cent. fare reduction hitherto granted foreign tourists in Germany on tickets bought abroad and purchased in foreign currencies, ceases on February 1.

Certain passenger services were curtailed on Wednesday, January 10, and preference given to business traffic and military leave trains. These curtailments are stated to have disturbed international traffic at Basle. A few days later a Berlin message said that further limitations of long-distance passenger trains had been made in view of the return of exceptionally cold weather, but it was added that trains carrying troops home on leave were not affected. An improved timetable had been planned for January 21 but had to be cancelled, and it was reported from Berlin on January 20 that for the third time during a fortnight drastic restrictions were being made in railway passenger traffic. From that date travel by express train became permissible only to holders of a special permit. It was also stated that sleeping cars had been withdrawn. On January 21 a German radio announcement said: "In the interest of maintaining coal supplies, leave travelling between the front and home has been reduced in conformity with the general restrictions on travel."

The *Kölner Zeitung* reported on January 20 that the transport of potatoes had become impossible and that, despite the measures taken by the authorities, potatoes for cattle were not reaching the farmers. In order to prevent a great number of animals from being slaughtered on account of food shortage, potatoes destined for the civil population had to be diverted to cattle owners. Factories that use potatoes for making various food products had then not had any supplies for several days.

Roumanian—German Transit Traffic

Transit traffic between Roumania and Germany via Lemberg, which traverses a corner of Russian-occupied Poland, continues to form the subject of large numbers of rumours in many of the European capitals. If these rumours serve no other purpose, at least they emphasise the importance with which such traffic is regarded. We last reviewed the position at page 65 of our January 12 issue. It will be recalled that various messages from December 21 onward indicated that a limited traffic had begun to pass via this route, but it was stated in the *Neue Zürcher Zeitung* of January 16 that traffic had again had to be stopped, as the Russian railway authorities had refused to allow goods destined for neutral countries to be carried. The alleged reason was that such traffic was not within the terms of the German-Russian agreement; moreover, it was stated that Russia had failed to supply the number of locomotives promised. On January 16 also, the *Frankfurter Zeitung* admitted that there were considerable difficulties in conveying oil supplies to Germany from Roumania. After remarking that the greater part of the Roumanian oil output was controlled by foreign companies (among which British and American were the most important), the article pointed out that in pre-war days Roumanian oil was taken by pipe lines to the Black Sea and transported thence to Hamburg in tankers, of which Germany was deficient. The article assumed that the rail route via Poland could be made available if Germany possessed sufficient tank wagons.

It seems that this transit traffic through Lemberg ceased about January 13, at which time numbers of wagons of oil-cake and cellulose which had been despatched from Roumania to Germany three weeks earlier, were still lying at Lemberg. At the same time four wagon loads of German manufactured articles destined for Roumania were said to be held up by the Russians at Sniatyn, the frontier station on the Russian (Polish) side of the Roumanian frontier. The Soviet authorities allege that both Germany and Roumania have failed to fulfil the terms of the agreement—a further reference presumably to the difficulties that arose previously regarding the method of payment of transit fees. Roumanian reports state that wagon-loads of Roumanian timber intended for Germany have been unloaded in Soviet-occupied territory and part of the freight used for fuel. They also say that Russian labels

have been put on Roumanian trains leaving for Germany *via* Poland after they have crossed the Roumanian-Polish frontier, in order to create the impression in Germany that supplies are arriving from Russia.

On January 16, German-Russian-Roumanian negotiations began, with the avowed object of improving the arrangements for this transit traffic, and the chief result seems to have been a series of alarmist rumours. On January 17 an Exchange Telegraph message from Budapest suggested that a new double-track standard-gauge railway under German and Russian dual administration was to be built. The next day "it was reliably reported" that German troops had advanced into this strip of Soviet-occupied Galicia and taken possession of the whole of the existing railway. By January 23 the "mysterious troop movements" were being interpreted as full German military control of the area, leaving local civil administration to Russia. German official denials the same day included the statement that "there is a possibility that German railwaymen may organise the railway line between Przemysl and Cernăuti for the transport of Roumanian oil." Many German railwaymen are therefore being sent to the Soviet Union to reorganise the traffic. It is therefore possible that the lines which have Western European gauge are being operated under German supervision." The most likely explanation of the whole situation seems to be that the railway in question is in a poor state of repair; that German troops are in Soviet-occupied Galicia, partly, at any rate, to deal with exchanges of population; and that it has been arranged for German "technical troops" (military railway construction companies) to repair and manage the Lemberg line.

Meanwhile, it is a fair assumption that this route is at present still out of service for heavy traffic, and Roumanian exporters are being advised by Germany to use the route *via* Hungary. A Reuters message from Budapest of January 20 said that, owing to difficulties in the coal supply, the Hungarian Minister of Commerce had issued an order stating that from Tuesday, January 23, there would be considerable restrictions of railway traffic, which would last until March 10. At the same time efforts would be made to adapt traffic to existing needs. Apart from the difficulties in transporting coal, the intense cold and the heavy consumption of fuel by business and industry had rendered the new order necessary, it was added. A Bucharest message, dated January 28, said that the railway passenger service between Bucharest and Budapest had been drastically reduced to make possible the increased transport of oil along the same line. Hitherto there were four express trains each way daily between Bucharest and Budapest, but these have been reduced to one, and the trains for oil transport for Germany are being increased considerably.

Rolling Stock and German Exports

Germany's shortage of rolling stock for handling export trade is indicated by various Reuters messages. One of January 14 stated that 500 Swedish coal and coke trucks would shortly be running on the German railways to help delivery of coal from Germany to Sweden. It was remarked that Sweden was ill able to spare these trucks but that the extreme scarcity of coal and coke made it imperative even to allow other traffic to suffer. It has been considered unadvisable to use the Rotterdam route which was formerly chiefly used, and the safer route through the German Baltic ports is accordingly preferred.

Rumours that Germany has asked for the loan or hire of a large number of wagons from Belgium has received no confirmation by the Belgian authorities, states a Reuters message of January 21, although it is believed that some such request has been made. It is pointed out that there is a constant exchange of rolling stock between Belgium and the neighbouring countries, governed by the necessities of commercial traffic. It is expected in industrial circles that a considerable number of Belgian wagons will be sent to Germany shortly to fetch coal and coke which is needed for Belgian industries. German coke exports to Belgium at present represent only about 20 per cent. of the normal figure. After it had been found impossible to hire any large number of Belgian wagons, Germany is stated to have placed orders

with two Belgian firms for a total of 1,000 railway wagons. According to a Reuters message from Kaunas, dated January 24, an agreement has been signed by Germany and Lithuania for the transit through Lithuania of goods between Germany, Soviet Russia, and Manchukuo. On account of the shortage of German rolling stock 100 wagons are stated to have been sent by Lithuania to Germany to fetch coal. Reuters also reported from Riga (on January 26) that a severe coal shortage in Latvia is restricting railway communication. In view of the considerable increase in German coal prices and difficulties over transport, the Latvian Government has decided to buy 145,000 tons of Estonian oil shale. Two-thirds of this purchase will be devoted to the railways.

Germany is unable to supply coal to Jugoslavia under the existing arrangement between the two countries since sea routes are closed to the Reich, the Danube is frozen, and Germany is short of rolling stock, according to the Budapest radio quoted by Reuters. As a result of the coal shortage, railway traffic in Jugoslavia is stated to have been curtailed greatly.

Dr. Clodius, the German Foreign Office trade commissioner, arrived in Rome on January 25. It is understood that one of his tasks is to attempt to secure rolling stock on loan from Italy.

Railway Organisation in German-Occupied Poland

At the conclusion of the war of 1914-19 there were Divisional Managements of the Prussian State Railways at Danzig, Posen, Bromberg and Kattowitz, all in territory separated from Germany with the conclusion of peace. The creation of Poland seriously affected a number of railway routes and altered the entire current of traffic in the districts they served. Germany was left with remnants of routes previously belonging to these managements and had to allocate them to others, as best suited the circumstances. Certain former West Prussian lines were put under a so-called East management, located first in Berlin and later at Frankfort-on-Oder. After the invasion of Poland last September, the Germans occupied all these old divisional headquarters and have since been re-organising the working arrangements. The Königsberg management at first took over the lines in the Danzig and northern "corridor" area, but on November 2, 1939, the Danzig Division was officially re-established in the old Prussian State offices. A Divisional Management has now also been set up at Posen.

Finland and Sweden

It appears that the Soviet forces have been building strategic branches from the Murmansk railway to bases near the Finnish frontier. A press message of January 10 referred to a branch from a point on the main line where it skirts the White Sea to a base at Uhtua; and a Stockholm message of January 19 referred to a new railway from Kandalaksha on the Murmansk line (at the northern end of the White Sea) to the Swedish frontier in the neighbourhood of Salla.

The map of the Gulf of Bothnia region found on a Russian pilot whose aircraft was forced down recently on the Finnish Coast near Helsinki, is stated to have had drawn in as conjectural targets the railways and roads of Sweden as well as those of Finland. On January 14 eight Russian bombing aircraft flew over Luleå in Northern Sweden and dropped a number of bombs. A Swedish protest brought forth the Russian explanation that Luleå had been mistaken in a snowstorm for the Finnish town of Tornéå, some 70 miles away.

Sweden, although a neutral country, is now affected in many ways by repercussions of the Soviet attack on Finland. At first Sweden was concerned mainly with giving succour to the Finnish refugees who crossed her frontier, but more recently the Swedish railways have handled a considerable volume of traffic towards Finland in the forms of volunteers and supplies both of Swedish and of other origin. On January 5 it was announced in Stockholm that all Government employees in Sweden, including those on the State Railways and in the Postal Services, known to hold Communist views were to be dismissed. It was estimated that this step would affect 25 per cent. of the railway employees in northern Sweden. The reason given was that movements of Swedish troops and of volunteers for Finland had been reported to the Soviet authorities by Communists in Swedish Government service.

Questions in Parliament

The Government and the Railway Companies

Mr. Roston Duckworth (Manchester, Moss Side—C.) asked the Minister of Transport if he could state whether agreement had yet been reached between the railway companies and the Treasury as to the terms of compensation for the use of railways.

Major General Sir Alfred Knox (Wycombe—C.) asked the Minister of Transport when he expected that it would be possible to come to an agreement with the railway companies to enable them to pay dividends to shareholders.

Mr. G. Ridley (Clay Cross—Lab.) asked the Minister of Transport (1) whether, in view of the difficulty and delay experienced in reaching a financial agreement with the undertakings controlled by the railway executive, he would introduce legislation for the purpose of co-ordinating transport services under public ownership and control; and (2) whether a financial agreement had now been reached with the undertakings controlled by the railway executive, and, if not, whether he would state the reason for the delay.

Captain W. T. Shaw (Forfar—C.) asked the Minister of Transport when he would be in a position to announce what compensation was to be paid to the railway companies so that stockholders would know what dividends and interest they might expect.

Captain Euan Wallace (Minister of Transport): I regret that it is still not possible for me to say that agreement has been arrived at, but these negotiations have now reached such a stage that I am hopeful that I shall be able to make an early statement.

Mr. Herbert Morrison (South Hackney—Lab.): Can the Minister say whether it is the intention, when agreement is reached, to publish the terms of the agreement? Will there be any opportunity for the discussion by the House of its terms in view of the large financial implications which will be involved?

Captain Wallace: I think it will certainly be necessary to publish the terms of the agreement and I imagine there will be ample opportunity for members to debate it.

Mr. J. J. Lawson (Chester-le-Street—Lab.): May I ask whether there will be any consideration of compensation for the people who have been frozen while travelling on the railways?

Captain Wallace: On the question of weather, I think the hon. gentleman must address himself to a higher authority than me.

Sir Henry Morris-Jones (Denbigh—Lib. Nat.): Is it possible for the Minister to intercede with the Great Western Railway with regard to the withholding of the dividend payments they should make?

Captain Wallace: I can only repeat

what I said in the House last week—that I know of no reason why the railway company should defer dividend of payment on pre-ordinary stock.

Mr. H. Morrison: Can the Minister say whether the agreement which presumably involves large sums of public money will be subject to the approval of this House?

Captain Wallace: I cannot say at the moment without notice. Anyway we have not made it yet.

Travelling Facilities to Euxton Royal Ordnance Factory

Mr. Gordon Macdonald (Ince—Lab.), on January 24, asked the Minister of Transport whether he was aware that the lack of travelling facilities to the royal ordnance factory at Euxton, Chorley, Lancashire, from the townships of Ashton in Makerfield, Ince, Orrell, and the adjacent districts, were causing hardship to hundreds of workers; and if he would take the steps necessary to bring an early and a substantial improvement in such facilities.

Captain Euan Wallace: I understand that the Wigan Corporation provides a bus service from Ashton, Ince, and Orrell to Wigan at a frequency of $7\frac{1}{2}$ min. and puts on duplicate vehicles when necessary. The railway company provides a service from Wigan direct to the Royal Ordnance Factory station. I have had no complaints about the lack of travelling facilities in these districts, but if the hon. member will let me know more precisely in what respects the existing facilities are considered to be inadequate, I shall be glad to make enquiries.

Staff and Labour Matters

Railway Wages

Negotiations were continued on Monday, January 29, on the claims of the three railway trade unions for an all-round wage advance of 10s. a week to meet war conditions and the rise in the cost of living. An official announcement was issued at the close of the meeting stating that a full discussion took place, and the meeting was adjourned until Monday, February 5.

Miners' Wages

The delegate conference of the Mineworkers' Federation met in London on January 25 and recommended the district associations to accept the proposal of the mineowners of a cost-of-living sliding scale to give a flat rate variation of wages of $3\frac{1}{2}$ d. a shift for each movement of five points in the cost of living index figure, the adjustment to be made quarterly.

Shipyard Workers' Wages

The claim of the Confederation of Shipbuilding and Engineering Unions for an advance of 10s. a week to pliantime workers in shipyards and equivalent advances to piece rate workers,

was submitted to the Shipbuilding Employers' Federation at a conference in Carlisle on January 19. Mr. J. W. Stephenson, President of the confederation, stated the case for the unions, and Mr. H. Main, President of the employers' federation, replied that it would be necessary for the claim to be referred to the central board of the federation and the local associations. Another conference will be held later.

Seamen's Wages

The National Maritime Board on January 19 considered a claim for increased wages for seamen. The National Union of Seamen asked for an increase on account of the higher cost of living and to augment the seafarers' risk money granted last September. In the argument the union drew particular attention to the increased dangers at sea, and to the high bonuses which Scandinavian and other neutral seamen were obtaining. In reply, the shipowners referred to the danger of inflation which would be incurred if wages were governed by increases in the cost of living, and they pointed out that British shipowners were not getting the high freights obtained by neutrals. They undertook to refer the union's proposals to their constituents for consideration.

Stretford Collision, M.S.J.A.R.

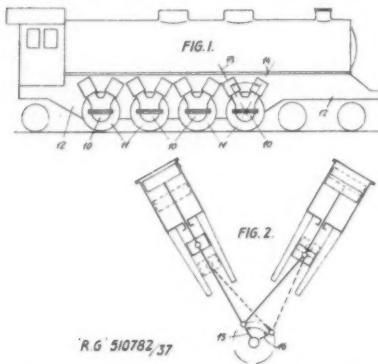
As reported in THE RAILWAY GAZETTE for January 19, a collision between two electric trains occurred on January 10 at Stretford on the Manchester, South Junction & Altrincham Joint Railway. Two coaches were telescoped and 20 persons injured, one fatally. Colonel A. C. Trench, Inspecting Officer of Railways, Ministry of Transport, opened his inquiry into the case at Manchester on January 16. Evidence was given by the enginemen of a steam passenger train from Warrington to Manchester which was running immediately in front of the electric trains, that they were stopped outside Stretford station for about two minutes before the signal came off. As they passed the box the signalman appeared to be waving them forward. The guard noticed an electric train approaching about 100 yd. away as his train was moving off. The motorman of this train, the 4.55 p.m. ex Altrincham, saw the tail lamp of a train in front as he was approaching the Stretford home signal, and pulled up. When the tail lamp in front disappeared, he drove slowly on into the station, sounding his whistle. The home signal was "off" all the time. He was about to get out to inform the signalman when another electric train ran into the rear of his. Evidence was given by other members of the railway staff, but the motorman of the colliding train had not recovered sufficiently to be interviewed. Colonel Trench announced that he would hear further witnesses in private.

ABSTRACTS OF RECENT PATENTS*

No. 510,782. Individual Axle Drive

Henschel & Sohn Gesellschaft mit Beschränkter Haftung, of 2, Henschelstrasse, Kassel, Germany. (Patent of Addition to No. 507,679. Convention date: February 23, 1937.)

Each driving axle of a locomotive is provided with two V-steam engines 10 which are, for instance, located outside each driving wheel 11 in the space between the wheel and the limiting profile, and are fixed in the manner indicated in the parent patent No. 507,679 upon the locomotive frame 12. The driving wheels 11 are driven directly by means of resilient coup-



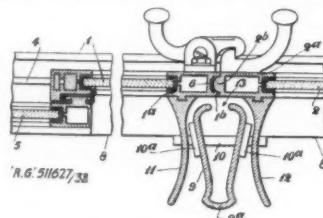
lings. Instead of being at the usual 90 deg. to each other the cylinder axes 13, 14 of each engine are inclined at some other angle, such as 60 deg. The cranks 15, 16 of two engines are displaced relatively by any suitable angle, generally 90 deg., as shown in Fig. 2, in which the driving gear of one pair of cylinders is shown in full lines and the driving gear of the pair of cylinders located on the other side of the locomotive is shown in dotted lines. It is stated that great simplicity, accessibility, and mounting of considerable powers within a small space are obtained by such an arrangement.—(Accepted August 8, 1939.)

No. 511,627. Ventilation

Worcester Windshields & Casements Limited, Arthur Edward Ernest Jones, and Frederick Cyril Browne, of the Company's address, New Bank Street, Barbourne, Worcester. (Application date: May 19, 1938.)

The drawing is a sectional plan view of a ventilation window comprising two glazed panels 1, 2 sliding horizontally in or on guides 4 and coming end to end at the middle of the window aperture, when closed, but sliding behind fixed panels 5 when opened. A rounded bead or rib 2b on one frame

member closely fits a groove 1b in the other and engages a packing strip 6, thus ensuring a draught-proof joint when the frame members 1a, 2a come together. The guides are supported on frame members 8. Fixed to these

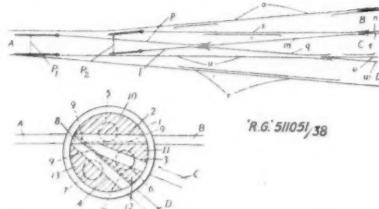


frame members 8 is a central vertical deflector bar 9 with a front wall 9a and a vertical slot 13 between its two edges as shown. This deflector 9 is secured by means of attachment members 10a and a plate 10. Vanes 11, 12 are also provided, thus ensuring that no strong air currents enter the vehicle and providing a suction to effect better ventilation.—(Accepted August 22, 1939.)

No. 511,051. Point Indicators

Standard Telephones & Cables Limited, Andrew Brown, and Thomas Alfred Marshall, all of Connaught House, 63, Aldwych, London, W.C.2. (Application date: February 11, 1938.)

This invention involves a unitary points indicator for use in railway signalling control and/or indication panels, and means for separately indicating three or more alternative paths via the points. As applied to tandem turnout points the track A is normally connected via two separate sets of points P1, P2 and rail sections l, m, n in parallel with o to track B. If points



P1 are changed over, a train will pass from track A via rail sections p, p, w in parallel with track r to track D and if points P2 are switched a train will pass from track A via rail sections s, t in parallel with u, v to track C. An indicator for such a layout, which may be constructed as in patent No. 500,957, comprises a cylinder frame 1 carrying a lunar white glass disc behind which is a clear glass disc on which the

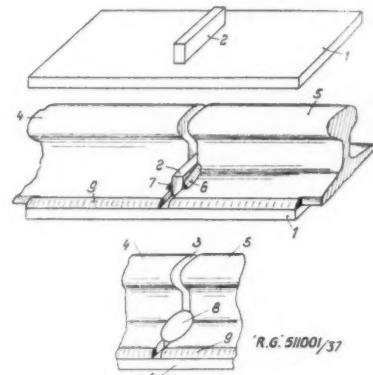
* These abridgments of recently published specifications are specially compiled for THE RAILWAY GAZETTE by permission of the Controller of His Majesty's Stationery Office. Group abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2. either sheet by sheet as issued, on payment of a subscription of 5s. a group volume, or in bound volumes, price 2s. each, and the full specifications can be obtained from the same address price 1s. each.

parts 10 to 13 are painted black leaving the track sections 2, 3, 4. A three-armed partition 9 divides the space behind the discs into three compartments each containing a lamp 5, 6 or 7, illumination of any one of which lights one of the track sections 2, 3 or 4, the portion 8 of the lunar-white glass disc being painted white for this purpose. Other applications are illustrated.—(Accepted August 11, 1939.)

No. 511,001. Rail Joints

Johann Friedrich Schneider, of Tegeterstrasse 67, Berlin NW. 65, Germany. (Convention date: December 15, 1937.)

A rail joint comprising a base plate 1 and a lug or nose 2 is fitted at the gap between two rails 4 and 5, the lug or nose 2 extending into this gap. The lug or nose 2 may be welded to the rail ends by seams 6, 7 or the projecting portion may be riveted in the form of two rivet heads 8, while the longitudinal edges of the base plate 1 are connected with the edges of the feet of the rails by welds 9. In an alternative form the lug 2 extends

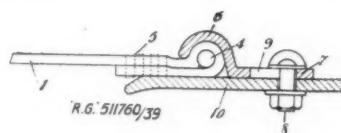


transversely to the gap between the rails and engages a longitudinal slot in the adjacent end of each rail. In a modification of this alternative form the lug 2 is extended upwards and provided with holes for receiving bolts for securing the lug to the webs of the rails 4, 5.—(Accepted August 11, 1939.)

No. 511,760. Flexible Passage-ways

Società Italiana Pirelli, of Via Fabio Filzi 21, Milan, Italy. (Convention date: March 8, 1939.)

Means for connecting the edges of sheets of flexible passage-ways between coaches to the bodies of the coaches



include a plane sheet 1 of resilient vulcanised rubber reinforced by the incorporation in the surface layers of fabric reinforcement, the edge of the sheet

being folded over a core 4 of rope, textile fibres or other suitable material and secured in this position, for instance, by stitching 5. The bead so formed is lodged in the cavity of a hook-section portion 6 of a retaining plate 7 secured to the body 10 of the vehicle by bolts 8 extending through elongated holes 9. As the holes 9 are elongated the passage-way can be correctly secured by adjusting the plate 7.—(Accepted August 23, 1939.)

No. 511,385. Couplings

Cyril Irving Birkbeck, of 66, Elmbank Way, London, W.7. Alfred Cecil Nebblitt East, of 24, Park Avenue, London, N.W.2, and London Passenger Transport Board, of 55, Broadway, Westminster, London, S.W.1. (Application date: May 6, 1938.)

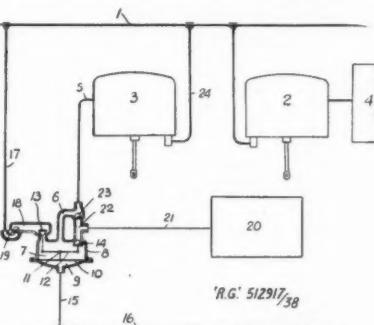
The ends *a* of the underframes of two adjacent coaches are coupled by a drawbar assembly *b* comprising pins *c* secured between plates *d* which are clamped to a spring *e* in the housing *F*, and two main plates or trays *k*, *m* separated by a bar *n*, the heads *o* of the plates *k*, *m* being separated by the web *p* of a bearing housing *q*. Bolts are placed in holes *r* for facilitating the clamping or locating coupling cables *h* by clip plates or cleats and further bolts are placed in holes *s* for similarly clamping hoses *i*, *j*. The pressed plates *k*, *m* are each provided with flanges *u*, *v* which are oppositely

directed so as to form channels for the coupling hoses *i*, *j* and cables *h*.—
(Accepted August 17, 1939.)

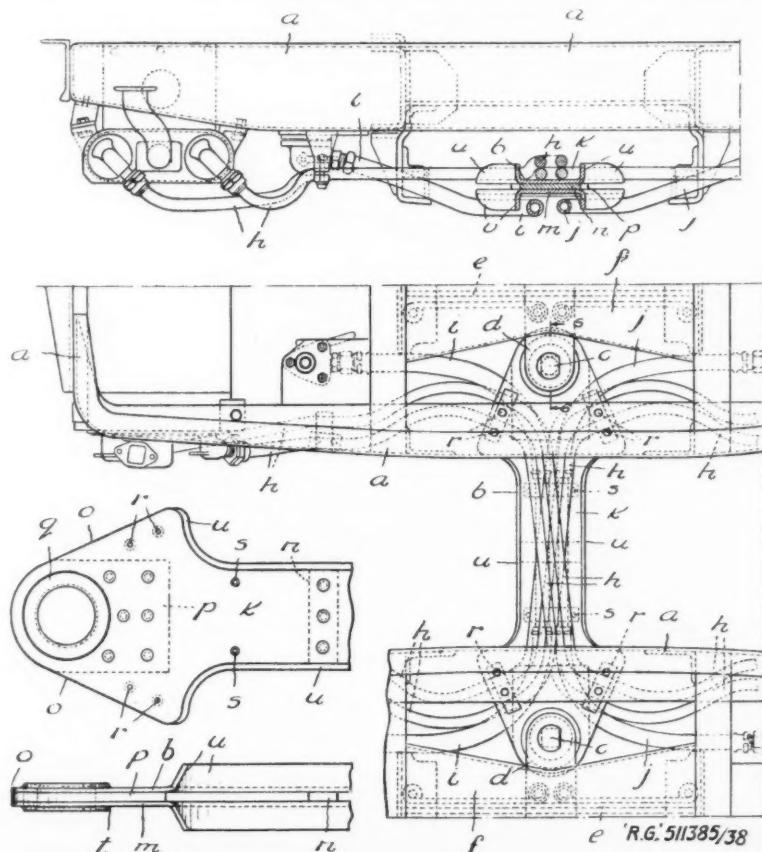
No. 512,917. Vacuum Brakes

Westinghouse Brake & Signal Co.,
Ltd., and Arthur William Simmons,
all of 82, York Way, King's
Cross, London, N.1. (Application
date: March 21, 1938.)

The usual brake pipe 1 extending throughout the train is connected to



brake cylinder 2 and an additional brake cylinder 3 on each vehicle, the upper chamber of the cylinder 2 being connected to a vacuum reservoir 4 and the upper chamber of the cylinder 3 being connected by a pipe 5 and passage 6 to the upper chamber 7 of a control valve device 8. This device 8



separated from the lower chamber 9 by a diaphragm 10 connected to a float 11 in a floating lever 12 carrying the elements 13, 14. The chamber 9 is connected by pipes 15 to a control device 16 the vacuum in which varies with the speed of the train. A pipe 17 connects the main pipe 1 to a passage 18 in the device 8, a non-return valve 19 being interposed. A non-return ball valve 23 permits air to flow from additional reservoir 20 through pipe 21 and chamber 22 to the main pipe 1.—(Accepted September 28, 1919.)

**COMPLETE SPECIFICATIONS
ACCEPTED**

- 509,589. British Thomson-Houston Co. Ltd. Steam valves.

509,704. I. G. Farbenindustrie A.G. Method of repairing flanged wheels adapted to run on rails.

509,727. Hall, J. H. Railway track joints.

509,757. Dutfield, A. E., Rawlings, E. J., and Rawlings Manufacturing Co. Ltd. Ventilating devices for vehicles.

510,163. Sulzer Frères Soc. Anon. Vehicles, more particularly rail vehicles.

510,225. P. & M. Co. (England) Ltd. Rail anti creepers.

510,299. Diamond, E. Sanding appliances for rail vehicles.

510,477. Gass, E. M. Throttle or regulating valve apparatus for locomotives.

510,622. Maschinenfabrik Augsburg-Nürnberg A.G. Diesel engines.

510,782. Henschel & Sohn Ges. "Individual axle drive for rail vehicles."

510,880. Stone & Co. Ltd., J. and Vidal J. F. B. "Stoves or cooking ranges for railway vehicles."

511,001. Schneider, J. F. "Railway rail joints."

511,044. Cockburns Limited and Grant, T. "Silencers for steam safety valves."

511,051. Standard Telephones & Cables Limited, Brown, A., and Marshall, T. A. "Point indicators on railway track panels."

511,385. Birkbeck, C. I., East, A. C. N., and London Transport. "Couplings for railway vehicles."

511,561. Lever Bros. & Unilever Limited, and Walton, J. B. "Body for a road or rail vehicle."

511,627. Worcester Windshields & Casements Limited, Jones, A. E. E., and Browne, F. C. "Ventilating means for vehicles."

511,642. Porsche, F. "Springing arrangements for vehicles."

511,661. Kapper, H. "Springs for vehicles."

511,683. Leek, A. E. "Control devices for electric motors."

511,732. Young, W. "Door-securing mechanism."

511,760. Soc. Italiana Pirelli. "Flexible passageways between railway coaches, tramway cars, and like vehicles."

511,788. Eichelgrun, M., and Schapira, E. (trading as Eichelgrun & Co., M.). "Switches for light railways and the like."

511,876. Whiteley, A. H., and Catherall, A. C. "Magnetic securing devices for doors, windows, and the like."

511,890. General Railway Signal Company. "Route control systems for railways."

RAILWAY AND OTHER MEETINGS

Midland Railway Co. of Western Australia Ltd.

The ordinary general meeting of the Midland Railway Co. of Western Australia Ltd. was held at Winchester House, Old Broad Street, E.C.2, on January 25. Mr. William Sandford Poole, Chairman of the company, presided.

The Secretary, Mr. William Tait, read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said that the improvement in both gross and net traffic receipts had not been maintained. Gross receipts were £174,422, as compared with £179,613 in 1937-38, a decrease of £5,191, but the gross receipts of the past year were arrived at after adjustment in respect of rebates on wheat carried in bulk which amounted to £3,584, of which about £1,000 related to 1937-38, and the balance to the year under review. They arose under an arrangement made at the time the system of transporting wheat in bulk came into existence whereby consignors should receive a rebate on the total wheat transported in bulk over a certain fixed minimum quantity. The year 1937-38 was the first in which a claim to a rebate arose, but as the season year ran to the end of August it was not known at the end of June, 1938, how much the rebate would be. In the present accounts provision had been made not only for the rebate found to be due for the season 1937-38, but for the proportion of the season 1938-39 which fell within the company's fiscal year.

The net traffic receipts were £91,601 as against £98,943 in the previous year, but if the bulk wheat rebate for 1937-38 had been brought into the 1937-38 accounts the net traffic receipts of 1938-39 would have been about £97,943. The working expenses amounted to £82,821 and compared with £80,670 for 1937-38, an increase of £2,151.

There was a decline of £1,903 in passenger earnings, attributed mainly to the continued deflection of travel by rail to road motor vehicles and partly to restricted activity caused by the depressed state of the primary industries. Despite a series of adverse seasons, livestock traffic earnings were fairly well maintained, being only £167 below those of the previous year. Wheat traffic receipts were somewhat better than in 1937-38 but this increase was offset by declines in other forms of goods traffic. The establishment of bulk storage containers at the port of Geraldton, for delivery of petrol and oil supplies direct from oversea tanker vessels, had deprived the company of a yearly freight of between £10,000 and £12,000. The loss of earnings from this source in the year under review was approximately £4,000. Train mileage was 282,019, or about

the same as for 1937-38 when it was 282,137, but gross earnings per train mile were some 4d. less. Working expenses per train mile, 70·29d., showed an increase as against 68·79d. in 1937-38.

The net revenue from the railway and interest and registration fees was £87,871, compared with £92,118. After making allocation for depreciation and renewals, providing for Australian and British taxation, and the interest on the first mortgage debenture stock, there was a balance of £42,712, to which had to be added £29,491 brought forward, making a total of £72,203 at the credit of the revenue account. Interest on the second mortgage cumulative income debenture stock, at the full rate of 5 per cent. for the year,

required £29,618, leaving an unappropriated revenue balance of £42,585 to be carried forward to next year's account.

The directors regretted that in view of the fall in traffic receipts since June 30 last, and the exceptional circumstances of the present time, they could not see their way to recommend the payment of a dividend on the unified ordinary stock. So far as prospects for the current year were concerned, rainfall throughout the Midland territory had been good, and reports of wheat crops indicated a greater acreage yield than of last season. Pastures were well established and stock generally was said to be in good condition. Owing to the war, however, the outlook was obscure.

The report and accounts were adopted, the auditors reappointed, and the proceedings closed with the passing of a vote of thanks to the Chairman, directors, and staff.

Bengal & North Western Railway Co. Ltd.

The ordinary general meeting of the Bengal & North Western Railway Co. Ltd. was held at Winchester House, Old Broad Street, E.C.2, on January 30, Lt.-Colonel T. E. Gracey, R.E., Chairman of the company, presiding.

The Chairman, in moving the adoption of the report and accounts, said that the gross earnings of the joint undertaking amounted to just over 363½ lakhs of rupees, nearly 11½ lakhs less than those of last year. Nearly the whole of this decrease was on the company's line, the drop on the Tirhoot line being under half a lakh of rupees.

Coaching traffic showed a slight increase of about Rs. 22,000, but the number of passengers carried fell away by 779,925; the falling off occurred in the second half of the year.

The year was characterised by a decline in goods earnings of Rs. 11·41 lakhs. The decrease in the total tonnage lifted was 412,580 tons. These decreases were almost entirely due to an unusually poor sugar season and in some extent to unsettled labour conditions in Assam and Cawnpore which for a time disturbed normal trade conditions.

Working expenses increased by Rs. 5·61 lakhs mainly due to the renewal of goods vehicles, the increased cost of coal, and to additional staff required to comply with the hours of employment regulations being engaged.

The percentage of working expenses to gross earnings rose from 47·15 percent. in the previous year to 50·19 percent.

In recent times the cost of nearly all material had advanced appreciably and it had to be expected that with the limitations and restrictions which war conditions imposed on the manufacture, supply and shipment of railway supplies, working expenses would be still further affected.

Fortunately, stocks of European stores required for locomotive and other main-

tenance sufficient for at least two years were secured at pre-war prices before hostilities began.

It would be seen by reference to the net revenue account that the provision for income tax, both English and Indian, had increased from £221,125 to £270,750.

The company's share of the net earnings as shown in the net revenue account amounted to £752,943, or £104,004 less than last year. After deducting the small loss by exchange under the book rate of 1s. 6d. per rupee and making the necessary adjustment for taxes, payment of interest on debenture and preference stocks, interim dividend and bonus, appropriating £102,524 interest on investments, cash balances, etc., usually credited to the reserve account; and providing as usual the £35,000 for the sinking fund, the amount to be dealt with was £227,767.

From this was recommended the payment of a final dividend of 7 per cent., together with a bonus of 1 per cent., making for the whole year a total dividend and bonus of 16 per cent., compared with a distribution of 18 per cent. for last year. The carry-forward would then be reduced from £65,919 to £30,767.

With a favourable monsoon, prospects for this season were promising, and the various crops, including sugar cane, were reported to be good.

Future conditions of trade and commerce in India arising from the outbreak of war gave rise to much uncertainty. So far as the general public was concerned war or the resignation of the Congress Ministries seemed to have little effect on their everyday life and activities.

It might be found impossible to carry out fully the sanctioned programme of renewals and replacements owing to the difficulty of obtaining material not manufactured in India

In such cases the directors proposed to open a revenue renewal suspense account to which amounts unexpended in each year would be placed against the time when it is again feasible to resume operations in full and make up the leeway.

The Kosi river in the locality of the Mansi Bhaptiahi section in Tirhut continued its depredations. Some indications of an eastward recession were reported, but the vagaries of this wide-sweeping river rendered the prospect of any immediate relief to the company's territory uncertain.

The bridging and doubling on the 33-mile section of the company's main line between Sonepore and Chupra, together with the re-alignment near Dighwara where a threat by the Ganges river had forced a retirement, was in progress.

The question of revising the scales of pay for the superior staff recruited after 1933, which had been found to be inadequate to secure men suitably qualified and of the desired standard for the company's service, had, in conjunction with the boards of other company railways operating in India, been referred to the Secretary of State for India. As no reply had so far been received to the joint representation, the attention of the Secretary of State had recently been invited to this matter, which was of importance and increasing urgency.

The Chairman concluded with an expression of appreciation of the work of the agent and staff in India, and in the London office.

After putting to the meeting the resolution for the adoption of the report and accounts, which was seconded by the Rt. Hon. Lord Meston and carried unanimously, the Chairman proposed: "That a final dividend of £7 per cent. and a bonus of £1 per cent. for the six months ended September 30, 1939, on the ordinary stock of the company, less income tax, be, and the same is hereby, declared, making with the ad-interim dividend of £4 per cent. and a bonus of £4 per cent. paid on July 31, 1939, a total distribution of £16 per cent. for the year ended September 30, 1939." Lt.-Col. W. R. Izat seconded the motion, which was carried unanimously.

Sir Malcolm N. Hogg proposed the re-election as a Director of Lt.-Colonel Gracey. Lt.-Colonel A. H. C. Sutherland seconded, and the motion was carried unanimously.

The Chairman proposed the re-election as a Director of Lt.-Colonel A. H. C. Sutherland; Sir Maurice W. Brayshaw seconded and the motion was carried unanimously.

Mr. A. W. C. Addis (a shareholder) proposed the re-election of the auditors; Mr. A. Muirden seconded, and the motion was carried unanimously.

Mr. W. B. Renwick proposed a vote of thanks to the Chairman and directors, and also to the Agent and the staff in India and in England. Mr. A. W. C. Addis seconded and the motion was carried unanimously.

Arctic Weather Dislocates Traffic in Europe

The intensely cold spell which has recently affected large areas of Europe has had widespread repercussions on transport. Sweden is said to have experienced the coldest weather since 1893, and considerable hardship has resulted from the non-delivery of German coal to Sweden. The Copenhagen-Malmö train ferry has been frozen up for the first time since 1929, and the Sassnitz-Trälleborg ferry considerably impeded by ice.

Germany has suffered severely. Snow-drifts and snow-blocked points have delayed trains, and snow and frost have delayed street traffic as much as the railway trains. The *Völkischer Beobachter* has given a warning that the railway and tramway staffs face "an almost superhuman task" and that it is the duty of the public to use the trains and trams as little as possible. Railway traffic has been severely curtailed, and on January 12 it was reported from Copenhagen that for the first time foreign tourists from neutral countries were not permitted to travel in Germany.

Traffic to Germany from Roumania is stated to have been severely impeded by snow, and the line between Budapest and Kassa has been snowbound.

On the Athens-Salonika railway very heavy snowfalls prevented trains, including the Simplon Express, running for several days. The line was flooded near Lamia on January 24. Severe weather has been experienced all over Greece, especially in the north.

In Denmark several lines have been blocked by snow, and on the main lines trains have been running up to five hours late. Traffic in the belts and sounds has been severely dislocated. The train ferry across the Sallingsund

has been forced to stop, and across the Oresund at Elsinore the traffic is being carried on only with great difficulty. In the Great Belt three ice-breakers have been working constantly to keep the train ferry route open, but even so delays of up to 2 hr. have been frequent. Owing to snow and frost it has been decided to stop all Lyntog traffic during this abnormal frost.

Twelve lines have been declared closed in Jugoslavia and traffic between Athens and Belgrade was interrupted on January 12. On that day it was stated from Belgrade that the whereabouts of five trains snowed up in country districts was uncertain.

A message from Budapest on January 24 stated that all railway traffic had come to a standstill in Hungary owing to the worst blizzard experienced for 39 years.

Northern Italy has been swept by a gale so violent that a goods train passing over a viaduct near Trieste was blown over. The freezing weather interrupted the electric train service between Rome and Naples. Heavy rains also caused considerable damage including the collapse of a railway bridge over the river Cervano in Apulia.

Spain has also suffered from the effects of Arctic weather conditions, with the consequent interruption to transport services. A passenger train from Valencia to Zaragoza was stopped near Barracas on January 13, the line being completely blocked by snowdrifts. Food had to be sent from nearby villages for the relief of the passengers, until relays of workers succeeded in clearing the line. The train eventually reached Zaragoza on the 18th. Other cases of delay through snowdrifts have occurred.

Severe Weather Delays British Trains

(See illustrations on page 151)

Recent exceptional weather conditions have caused widespread dislocation of transport services throughout Britain. London suburban train services have had to be curtailed and main-line passenger and goods trains have been very considerably delayed. Every effort has been made to reduce delays to a minimum and to give priority to trains carrying food and fuel. The four main-line companies made special arrangements for additional supplies of food at railway station buffets to cope with the extra demand caused by train delays.

On the electrified portions of the Southern Railway recourse was had for a short time to electric coaches hauled by steam locomotives. Delays in arrival in the case of numerous trains on all systems were registered in hours instead of minutes and many services were completely withdrawn.

The worst of the dislocation was overcome by the middle of the week, although delays were still frequent.

The Cold of a Fortnight Ago

Details of the great freeze-up a fortnight ago were given in a statement issued by the Railway Executive Committee on January 31. It declares that it was the worst weather for a century; railway history records nothing like it.

Snow ploughs were out on the main lines; frozen couplings had to be hammered apart; and grease in axle boxes frozen solid. These were just three of the many conditions with which railwaymen had to contend during this record spell of severe weather. In the North-Eastern area a continuous frost began before Christmas with heavy fog for 12 days.

This abnormal weather told on the railwaymen, who have been working long hours with very little break since the war began, and in some districts as many as 25 per cent. of the staff were absent through sickness.

February 2, 1940

NOTES AND NEWS

Southern Railway Dividend Postponed.—The Southern Railway Company announces that it will not be possible for the directors to make a dividend announcement on February 19 as originally intended.

Summer Time.—Sir John Anderson announced in the House of Commons last week that, after consultation with the French Government, it had been decided that summer time this year should begin at 2 a.m. on Sunday, February 25. This is an advancement by nearly two months of the normal Statutory date, which this year would have fallen ordinarily on April 21. Last year, summer time began on April 16 and should have ceased on October 8, but was extended until November 18.

The Thames & Medway Canal.—It has been reported in the daily press that the old Thames & Medway Canal (the property of the Southern Railway) is being filled in to provide railway sidings. Actually the bed of the canal is forming a useful place for tipping spoil now that the canal has been abandoned, and the tip siding used for this purpose may have given rise to the rumour. A lengthy reference to the history of this canal was made in our Electric Traction Supplement for June 30, 1939, at the time of the electrification of the Medway group of lines.

Northern Ireland Traffics.—Total passenger receipts on railways wholly in Northern Ireland during the first ten months of 1939 were £271,387, an improvement of £14,788 on the corresponding period of 1938, although the number of passengers (excluding season ticket holders) fell from 5,136,989 to 4,949,807. Merchandise and minerals conveyed in the first ten months of 1939 were 467,485 tons, an increase of 57,753 tons in comparison with the first ten months of 1938; the number of livestock rose from 185,372 to 197,865, and the total goods traffic receipts from £154,388 to £173,877. On railways partly in Northern Ireland, the ordinary passengers in the first ten months of

1939 were 4,843,472, against 4,851,228 in the first ten months of 1938, and the total passenger receipts of £411,245 were £5,560 lower. Merchandise and mineral tons for the ten months increased from 773,622 to 950,224, and the number of livestock from 620,773 to 648,436. Total receipts from goods traffic in the first ten months of 1939 were £591,836, against £509,770 in the corresponding period of 1938.

Japanese Railway Accident.—It is reported that 176 persons lost their lives and 69 others were injured when a petrol driven tram was derailed and caught fire on January 29 at Osaka.

Intense Cold in United States.—In common with other parts of the world, the United States of America has experienced extremely cold weather which has had repercussions upon transport. On January 21 it was reported that four feet of snow had fallen in western New York in 48 hr. and heavy falls in the Middle West had delayed trains to California by as much as 5 hr.

Ballingrane-Foynes Line Closing to Passengers.—The proposed closing of the Ballingrane-Foynes passenger service, which was announced by the Great Southern Railways (Eire) to take place on January 1 (as recorded at page 855 of THE RAILWAY GAZETTE, December 29 last), has been postponed for three months. It is understood that this action is due to Government intervention, as strong representations had been made by many sections of the community.

Collision on Liverpool-Southport Line.—One of the new all-steel electric trains (described in our *Electric Railway Traction Supplement* to this issue) was involved in a collision on January 23 at Seaforth station, L.M.S.R., when another train ran into its rear. The fact that, although the train was well filled, no serious injuries were suffered by the passengers, is regarded as a tribute to the strength of the new stock.

British and Irish Railway Stocks and Shares

Stocks	Highest 1939	Lowest 1939	Prices	
			Jan. 30, 1940	Rise/ Fall
G.W.R.				
Cons. Ord.	38	21 ¹ ₂	39	—
5% Con. Prefce.	92	71	99 ¹ ₂	+3
5% Red.Pref.(1950)	98	83	99 ¹ ₂	+3
4% Deb.	103	91	105 ¹ ₂	+2
4 ¹ ₂ % Deb.	105 ¹ ₂	93 ¹ ₂	103 ¹ ₂	+4 ₁ ₂
4 ¹ ₂ % Deb.	110	99	111	+3
5% Deb.	121	109 ¹ ₂	122 ¹ ₂	+4
2 ¹ ₂ % Deb.	63 ¹ ₂	54	60 ¹ ₂	+2
5% Rt. Charge	117	104	114	+2
5% Cons. Guar.	111	96 ¹ ₂	114	+1
L.M.S.R.				
Ord.	17	91 ₄	141 ₂	-1 ₁
4% Prefce. (1923)	46 ¹ ₂	20	49	+3
4% Prefce.	63 ¹ ₂	37 ¹ ₂	65	+2
5% Red.Pref.(1955)	83	58 ¹ ₂	85 ¹ ₂	—
4% Deb.	98 ¹ ₂	85	100 ¹ ₂	+1
5% Red.Deb.(1952)	109	101 ¹ ₂	107	—
4% Guar.	87 ⁷ ₈	73	90 ¹ ₂	+1
L.N.E.R.				
5% Pref. Ord.	55 ₄	31 ⁸	41 ₂	+2 ₄
Def. Ord.	31 ₂	15 ⁴	27 ¹ ₂	+3 ₁
4% First Prefce.	38 ¹ ₂	19	44	+2
4% Second Prefce.	15	7 ³ ₈	151 ₂	+1
5% Red.Pref.(1955)	55	38	62 ¹ ₂	+4 ₁ ₂
4% First Guar.	78 ¹ ₂	60	79 ¹ ₂	+1
4% Second Guar.	68 ⁷ ₈	47	70	—
3% Deb.	71 ¹ ₂	57	72 ¹ ₂	+2
4% Deb.	93	76	93 ¹ ₂	+3
5% Red.Deb.(1947)	106 ¹ ₂	98	104 ¹ ₂	—
4 ¹ ₂ % Sinking Fund	104 ¹ ₂	96	100 ¹ ₂	—
Red. Deb.				
SOUTHERN				
Pref. Ord.	78	46 ¹ ₂	71	+3
Def. Ord.	19 ¹ ₄	7	14	—
5% Prefce.	100	76	100 ¹ ₂	+3
5% Red.Pref.(1964)	102 ³ ₁₆	94	100 ¹ ₂	+2
5% Guar. Prefce.	116 ¹ ₂	103	114	+1
5% Red.Guar.Pref.	112 ⁴	102 ¹ ₂	111 ¹ ₂	+1
(1957)				
4% Deb.	103	91 ¹ ₂	105 ¹ ₂	+2
5% Deb.	118 ¹ ₂	109 ¹ ₂	120 ¹ ₂	+3
4% Red. Deb.	106	98	104 ¹ ₂	+2
1962-67				
4% Red. Deb.	102	96	104 ¹ ₂	+2
1970-80				
BELFAST & C.D.				
Ord.	6	3	4	—
FORTH BRIDGE				
4% Deb.	98 ¹¹ ₁₆	81	90 ¹ ₂	+4
4% Guar.	95	80	90 ¹ ₂	+6
G. NORTHERN (IRELAND)				
Ord.	6	21 ₂	6	—
G. SOUTHERN (IRELAND)				
Ord.	131 ₂	8	123 ₄	—
Prefce.	26	10	24	+14
Guar.	401 ₂	22	39	+12
Deb.	57	455 ₈	541 ₂	+12
L.P.T.B.				
4 ¹ ₂ % "A"	115	103	111 ₂	+2
5% "A"	123	106 ₄	116 ₂	—
4 ¹ ₂ % "T.F.A."	105	100 ¹ ₂	103	—
5% "B"	117 ₂	102	112	+2
"C"	84	63 ⁷ ₈	65 ₈	+18
MERSEY				
Ord.	241 ⁷ ₅₂	171 ₄	20 ¹ ₂	—
4% Perp. Deb.	93 ⁸	88 ⁴	89	—
3% Perp. Deb.	77	65 ₂	64 ¹ ₂	—
3% Perp. Prefce.	55	49 ¹ ₄	52 ¹ ₂	—

Irish Traffic Returns

IRELAND	Totals for 3rd Week			Totals to Date		
	1940	1939	Inc. or Dec.	1940	1939	Inc. or Dec.
Belfast & C.D. (80 miles)	£2,141	£1,760	+ £381	£5,990	£4,808	+ £1,182
pass. goods	575	418	+ 157	1,526	985	+ 541
total	2,716	2,178	+ 538	7,516	5,793	+ 1,723
Great Northern (543 miles)	8,700	7,650	+ 1,050	28,500	24,700	+ 3,800
pass. goods	10,950	9,300	+ 1,650	30,200	25,400	+ 4,800
total	19,650	16,950	+ 2,700	58,700	50,100	+ 8,600
Great Southern (2,076 miles)	pass. 26,817	27,079	- 262	88,428	86,664	+ 1,764
goods 41,939	41,637	302	+ 128,043	123,319	+ 4,724	
total 68,756	68,716	40	+ 216,471	209,983	+ 6,488	
L.M.S.R. (N.C.C.) pass. (271 miles)	3,710	2,980	+ 730	11,350	9,070	+ 2,280
goods	2,930	2,590	+ 340	8,390	7,190	+ 1,200
total	6,640	5,570	+ 1,070	19,740	16,260	+ 3,480

OFFICIAL NOTICES

London and North Eastern Railway

NOTICE is hereby given that the Directors have voted February 9th at the close of business as the date for striking the balances of the Company's Preference and Ordinary Stocks. Final Dividends declared for the year ended December 31st, 1939, will be payable only to the Stockholders whose names are recorded in the books of the Company on the date so fixed.

Deeds of Transfer should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street Station, London, E.C.2, before 5 p.m. on February 9th.

By Order:
P. J. DOWSETT,
Secretary.

Marylebone Station,
London, N.W.1.
January 29th, 1940.

Indian State Railways

APPLICATIONS are invited from British subjects of non-Asiatic domicile for an appointment in the Mechanical Engineering and Transportation (Power) Department of Indian State Railways.

Candidates must have been not more than 30 years of age on the 1st October, 1939, and must have passed the qualifying examination for A.M.I.C.E., or A.M.I.Mech.E., or have obtained an engineering degree or diploma giving exemption from such examination. They must have served at least four years as pupils or apprentices in locomotive workshops of a British railway, or in workshops of locomotive builders of repute, and should have had some training in running sheds and in firing and one year's drawing office experience. They should have a thorough understanding of applied mechanics and the nature and composition of all materials used in shops and be able to design, and to calculate stresses on parts of machines.

Further particulars and forms of application may be obtained, on request by postcard (quoting appointment 14 C) from the High Commissioner for India, General Department, India House, Aldwych, London, W.C.2. Last date for receipt of completed applications, 12th February, 1940.

Universal Directory of Railway Officials
and Railway Year Book

45th Annual Edition, 1939-40

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Railway and Other Reports

Weymouth & Portland Railway Company.—A final dividend of £1 15s. 0d. per cent. is recommended, making £3 18s. 0d. per cent. for the year, compared with £4 9s. 0d. per cent. for the previous year.

International Railways of Central America.—A dividend of \$2 a share on the 5 per cent. cumulative preferred stock is to be paid on February 15 to holders of record on February 8. At this time a year ago \$1.25 a share was paid.

Metropolitan Railway Surplus Lands Co. Ltd.—A dividend of 1½ per cent. is recommended for the half year ended December 31, 1939 (against 2½ per cent. for the second half of 1938), making 2½ per cent. for the year, compared with 3½ per cent. for 1938. The balance to be carried forward is £3,249, against £1,255 brought in.

National Provincial Bank Limited.—The directors report that, after making provision for rebate of discount on current bills and after making a transfer to the credit of contingencies account, out of which account provision for all bad and doubtful debts has been made, the net profit for the year ended December 31, 1939, was £1,718,984 (against £1,771,785) and £573,587 was brought forward. A final dividend of 7½ per cent., making 15 per cent. for the year, less income tax, is now declared. The dividend for the year absorbs £1,421,912; £100,000 is placed to Bank Premises Account and £250,000 to Pension Fund; and £520,659 is carried forward.

Jonas Woodhead & Sons Ltd.—A net profit of £19,086 for the year to August 31, 1939, against £29,224 for 1937-38, was secured by this company. The ordinary dividend is again 10 per cent., the sum of £2,500 is transferred to staff-pensions account, £4,337 share issue expenses are written off, and £8,021 is carried forward, against £9,647 brought in. The company was able in the aggregate to receive a record turnover, but costs were greater. In 1938 a controlling interest was acquired in

Willford & Co. Ltd., of Sheffield, and early in 1939 the ordinary share capital of Ibbotson Bros. & Co. Ltd., of Sheffield. These acquisitions are expected to improve the scope and underlying strength of the company's business.

Canadian Car & Foundry Co. Ltd.—A net loss of \$504,815 is reported for the year to September 30, 1939, against a profit of \$1,177,314 for the previous year. After deducting \$249,141 for the dividends of 88 c. a share declared on the preference stock the surplus carried forward is reduced from \$3,542,277 to \$2,788,321.

Contracts and Tenders

The American Locomotive Company has received from the Chilean State Railways an order for 10 heavy 4-8-2 locomotives amounting in value to more than \$1,000,000.

It is reported from Brussels that a Belgian company has received an order from France for 1,000 railway tank wagons, and that two other Belgian manufacturers have accepted an order from Germany for 1,000 railway wagons. Further reference to the German order is made at page 160 in "Transport Services and the War."

The South Indian Railway has placed an order with Stewarts and Lloyds Limited for 3,500 solid drawn steel boiler tubes.

The Junagadh State Railway has placed an order with Pritchett & Gold and E.P.S. Co. Ltd. for 76 alkaline train lighting cells.

The Madras Port Trust has placed an order with the Hunslet Engine Co. Ltd. for a boiler for a saddle tank locomotive.

The Bombay, Baroda & Central India Railway has placed the following orders—

Barrow Hematite Steel Co. Ltd.: 860 tons of pig iron.

Howell & Co. Ltd.: 1,820 steel boiler and flue tubes.

Linley & Co. Ltd.: 31 copper firebox plates.

The Jodhpur Railway has placed an order with the Hunslet Engine Co. Ltd.

for four locomotive boilers superheated for "P" and "M" class locomotives.

The Bengal-Nagpur Railway has placed the following orders:—

Linley & Co. Ltd.: Copper plates.

George Turton Platts & Co. Ltd.: 2,500 buffer cases and 800 buffer plunger.

H. W. Ward & Co. Ltd.: 1 turret lathe.

North British Locomotive Co. Ltd.: Cylinders.

Superheater Co. Ltd.: Superheater headers and elements.

Steel, Peech & Tozer: 100 steel straight axles.

According to a statement by the Chilean Consul in New York, the 36 million peso order for locomotives authorised recently by the Chilean Government will probably be placed in the U.S.A. The original intention was to order the locomotives from Germany.

The Indian Store Department during the fiscal year 1938-39 placed 11,091 orders valued at £2,122,188. Purchases of stores in Britain amounted to £1,942,897, and Canada was second on the list of countries supplying material, with a total of only £23,801. The value of stores inspected by the department under contracts placed in India amounted to £1,230,069.

The South African Railways are enquiring for one 20,000-gal. pressed steel tank. (Feb. 29; Tender No. 2534; D.O.T. No. T. 15473/40).

The India Stores Department is calling for tenders (No. 956) for axles and tyres for the North Western and Eastern Bengal Railways. Tenders to be in at New Delhi by March 7. (D.O.T. No. 15336/40.)

Forthcoming Events

Feb. 3 (Sat.)—Permanent Way Institution (Manchester-Liverpool), at District Goods Manager's Office, Bolton, 3 p.m. "Curves and cant," by Mr. J. Whiteley.

Feb. 7 (Wed.)—Permanent Way Institution (London), at Albert Stanley Institute, Fulham Palace Road, Hammersmith, 7 p.m. "From track to scrap heap. Some of the methods employed by the G.W.R., in dealing with second-hand permanent way," by Mr. E. Hutt.

Feb. 12 (Mon.)—Institute of Transport (London), at Charing Cross Hotel, 1 for 1.15 p.m. Luncheon. Address by Rt. Hon. Lord Stamp.

Railway Share Market

Apart from gilt-edged and other investment securities, which were again active and higher on balance, other sections of the Stock Exchange developed an easier undertone. Home railway securities reflected the further gains shown last week; there was a fair amount of profit-taking in the junior stocks. Nevertheless, buyers were in evidence on any easing of prices. Prior charges continued in request and established further gains. Yields at current prices are regarded in the market as still quite attractive, bearing in mind the good investment status of the debentures and other prior charge stocks; the assumption is that there is scope for higher prices, provided the upward movement in gilt-edged is sustained. Great Western 4 per cent. debentures at 106 $\frac{1}{2}$ yield approximately 3 $\frac{1}{4}$ per cent., and at 101 $\frac{1}{2}$ a slightly larger return is obtainable on L.M.S.R. 4 per cent. debentures; the yield on L.N.E.R. 3 per cent. debentures at 73 $\frac{1}{2}$ is nearly 4 $\frac{1}{2}$ per cent.

As compared with a week ago Southern preferred has risen from 68 $\frac{1}{2}$ to 70 $\frac{1}{2}$, but on balance the deferred stock was slightly lower at 13 $\frac{1}{2}$. The preference stock moved up three points, and at par now yields 5 per cent., while the guaranteed stock was two points higher at 114 $\frac{1}{2}$, and the 4 per cent. debentures have risen to 106 $\frac{1}{2}$ to yield approximately 3 $\frac{1}{4}$ per cent. There was good demand for L.M.S.R. 4 per cent. 1923 preference, which is now 49, as against 46 $\frac{1}{2}$ a week ago. The 4 per cent. senior preference improved to 64 $\frac{1}{2}$, but the 4 per cent. guaranteed was only fractionally higher at 90 $\frac{1}{2}$. At 14 $\frac{1}{2}$ the ordinary stock was slightly reactionary, but the 4 per cent. debentures improved to over par, while the 5 per cent. debentures remained at 107. Great Western ordinary fluctuated, and at 39 $\frac{1}{2}$ is virtually the same as a week ago; the 5 per cent. preference has risen to 99 $\frac{1}{2}$ and the guaranteed stock to 114 $\frac{1}{2}$. L.N.E.R. 4 per cent. first guaranteed rose to 80 $\frac{1}{2}$ and still yields nearly 5 per cent.; the 4 per cent. second guaranteed, which at 69 was slightly lower on balance, yields almost 5 $\frac{1}{4}$ per cent. These stocks, whose dividends are cumulative, seem assured of receiving their full payments throughout the war. L.N.E.R. 4 per cent. first preference was

two points better at 44, and the second preference also improved, the current price being 15 $\frac{1}{2}$, which compares with 14 $\frac{1}{2}$ a week ago. Higher prices again ruled for London Transport "A" and "B" stocks; the 5 per cent. "B," now 112 $\frac{1}{2}$, shows a rise of two points as compared with a week ago. Metropolitan assented stock was higher at 59 $\frac{1}{2}$.

Argentine railway securities subsequently became less active, but on balance most movements have been in favour of holders. B.A. Gt. Southern 4 per cent. debentures were 62, and the 5 per cent. preference 25 $\frac{1}{2}$. B.A. & Pacific 5 per cent. debentures and 4 $\frac{1}{2}$ per cent. debentures made better prices as did B.A. Western 4 $\frac{1}{2}$ per cent. preference, while Central Argentine 6 per cent. preference improved to 31. Antofagasta ordinary moved up slightly to 11 $\frac{1}{2}$, while the 5 per cent. preference was 30, but Leopoldina Railway debentures were lower at 17, and San Paulo ordinary was quoted at 36. French railway sterling bonds were firm and have improved on balance, as have Canadian Pacific and Grand Trunk debentures. Bengal North-West moved in favour of holders.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1939-40	Week Ending	Traffic for Week			Aggregate Traffics to Date			Shares or Stock	Prices			
			Total this year	Inc. or Dec'd. compared with 1939	No. of Weeks	Totals	Increase or Decrease			Highest 1939	Lowest 1939	Jan. 30, 1940	
						This Year	Last Year					Yield % Note	
Antofagasta (Chili) & Bolivia	834	21.1.40	£ 20,380	+ 8,540	3	£ 55,330	+ 34,760	+ £ 20,570	Ord. Stk.	105 $\frac{1}{2}$	41 $\frac{1}{2}$	101 $\frac{1}{2}$ Nil	
Argentine North Eastern	753	20.1.40	ps. 116,800	- 6,900	30	ps. 4,642,300	ps. 4,801,800	- ps. 159,500	6 p.c. Deb.	41 $\frac{1}{2}$	2	21 $\frac{1}{2}$ Nil	
Bolivar	174	Dec. 1939	4,091	+ 1,952	52	51,531	42,150	+ 9,381	Bonds	7 $\frac{1}{2}$	5 $\frac{1}{2}$	7 Nil	
Brazil	—	—	—	—	—	—	—	—	—	5 $\frac{1}{2}$	4 $\frac{1}{2}$	8 $\frac{1}{2}$ Nil	
Buenos Ayres & Pacific	2,801	29.1.40	ps. 1,495,000	- ps. 223,000	28	ps. 36,208,000	ps. 36,929,000	- ps. 721,000	Ord. Stk.	51 $\frac{1}{2}$	26	31 $\frac{1}{2}$ Nil	
Buenos Ayres Central	190	2.12.39	\$90,800	- \$14,600	23	\$2,488,000	\$2,677,100	- \$189,100	Mt. Deb.	14	8	12 Nil	
Buenos Ayres Gt. Southern	5,082	20.1.40	ps. 0,033,000	- ps. 27,000	39	ps. 62,215,000	ps. 62,762,000	- ps. 547,000	Ord. Stk.	135 $\frac{1}{2}$	44 $\frac{1}{2}$	9 Nil	
Buenos Ayres Western	1,930	20.1.40	ps. 94,000	- ps. 102,000	30	ps. 21,797,000	ps. 20,137,000	+ ps. 1,660,000	Ord. Stk.	101 $\frac{1}{2}$	4	7 Nil	
Central Argentine	3,700	20.1.40	ps. 1,648,800	- ps. 52,6700	30	ps. 52,647,100	ps. 52,166,200	+ ps. 480,900	—	111 $\frac{1}{2}$	4	7 $\frac{1}{2}$ Nil	
Do.	—	—	—	—	—	—	—	—	Dfd.	4	11 $\frac{1}{2}$	31 $\frac{1}{2}$ Nil	
Cent. Uruguay of M. Video	972	20.1.40	23,805	- 5,416	30	569,555	535,592	+ 33,963	Ord. Stk.	214	7 $\frac{1}{2}$	2 Nil	
Costa Rica	188	June 1939	25,240	- 6,129	28	270,756	314,399	- 43,643	Stk.	241 $\frac{1}{2}$	18	22 9 $\frac{1}{2}$ Nil	
Dorada	70	Dec. 1939	14,100	- 1,100	52	164,500	193,300	- 28,800	1 Mt. Dfd.	1041 $\frac{1}{2}$	102 $\frac{1}{2}$	102 $\frac{1}{2}$ 5 $\frac{1}{2}$ Nil	
Entre Rios	810	20.1.40	ps. 268,000	- ps. 16,100	30	ps. 7,293,100	ps. 7,591,900	- ps. 298,800	Ord. Stk.	6	3	4 Nil	
Great Western of Brazil	1,016	20.1.40	13,800	+ 1,300	3	37,400	36,500	+ 900	Ord. Sh.	3 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$ Nil	
International of Cl. Amer.	794	Nov. 1939	\$511,348	\$10,912	48	\$5,448,489	\$5,081,216	+ \$367,273	—	—	—	—	
Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	71 $\frac{1}{2}$ d.	71 $\frac{1}{2}$ d.	1 $\frac{1}{2}$ Nil	
La Guaira & Caracas	224	Dec. 1939	7,185	+ 6,385	52	74,961	57,905	+ 17,056	Stk.	7	6 $\frac{1}{2}$	7 $\frac{1}{2}$ Nil	
Leopoldina	1,918	20.1.40	23,167	- 1,022	3	64,414	67,087	- 2,673	Ord. Stk.	21 $\frac{1}{2}$	2 $\frac{1}{2}$	2 Nil	
Mexican	483	31.12.39	\$420,600	\$30,400	26	\$7,132,500	\$7,078,400	+ \$54,100	—	15 $\frac{1}{2}$	4 $\frac{1}{2}$	18 Nil	
Midland of Uruguay	319	Dec. 1939	10,240	- 408	26	54,960	54,555	+ 405	Ord. Sh.	2 $\frac{1}{2}$	14	12 $\frac{1}{2}$ Nil	
Nitrate	386	15.1.40	9,925	+ 6,106	2	9,925	3,819	+ 6,106	Ord. Sh.	21 $\frac{1}{2}$	11 $\frac{1}{2}$	17 $\frac{1}{2}$ 61 $\frac{1}{2}$ Nil	
Paraguay Central	274	20.1.40	\$2,794,000	- \$33,000	30	\$94,102,000	\$91,003,000	- \$3,099,000	Pr. Li. Stk.	45 $\frac{1}{2}$	36	38 15 $\frac{1}{2}$ 16	
Peruvian Corporation	1,059	Dec. 1939	87,441	- 1,339	28	383,935	409,453	- 25,518	Pref. Stk.	15 $\frac{1}{2}$	16	21 $\frac{1}{2}$ Nil	
Salvador	100	23.12.39	\$22,580	- \$11,20	25	\$296,854	\$368,214	- \$71,360	Pr. Li. Dfd.	191 $\frac{1}{2}$	16	15 Nil	
San Paulo	1,532	14.1.40	30,800	- 344	2	53,650	58,414	- 4,764	Ord. Stk.	38	20	36 5 $\frac{1}{2}$ Nil	
Talat	160	Dec. 1939	3,600	+ 200	26	14,140	16,915	- 2,775	Ord. Sh.	5 $\frac{1}{2}$	5 $\frac{1}{2}$	8 Nil	
United of Havana	1,353	20.1.40	14,810	- 5,714	30	495,121	473,143	+ 19,978	Ord. Stk.	2	1 $\frac{1}{2}$	1 Nil	
Uruguay Northern	73	Dec. 1939	1,432	+ 185	26	6,222	6,478	- 256	Deb. Stk.	2	2	2 Nil	
Canadian	23,691	21.1.40	762,664	+ 137,249	3	2,234,933	1,809,867	+ 425,066	—	—	—	—	
Canadian Northern	—	—	—	—	—	—	—	—	4 p.c.	74 $\frac{1}{2}$	60	77 5 $\frac{1}{2}$ Nil	
Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	1001 $\frac{1}{2}$	76	100 4 Nil	
Canadian Pacific	17,171	21.1.40	511,200	+ 41,400	3	1,525,400	1,320,200	+ 205,200	Ord. Stk.	75 $\frac{1}{2}$	31 $\frac{1}{2}$	7 Nil	
India +	Assam Bengal	1,329	10.12.39	45,030	+ 1,098	36	1,077,117	1,030,116	+ 46,971	Ord. Stk.	761 $\frac{1}{2}$	60	74 $\frac{1}{2}$ 4
Barsi Light	202	31.12.39	4,515	- 338	39	96,952	106,200	- 9,248	Ord. Sh.	561 $\frac{1}{2}$	501 $\frac{1}{2}$	45 $\frac{1}{2}$ 87 $\frac{1}{2}$ Nil	
Bengal & North Western	2,096	31.12.39	85,050	- 6,258	13	648,460	703,002	- 54,542	Ord. Stk.	277	229 $\frac{1}{2}$	250 $\frac{1}{2}$ 67 $\frac{1}{2}$ Nil	
Bengal Dooars & Extension	161	20.12.39	4,262	- 162	38	105,004	112,005	- 7,001	—	91	84 $\frac{1}{2}$	190 37 $\frac{1}{2}$ Nil	
Bengal-Nagpur	3,267	31.12.39	251,850	- 25,086	39	5,830,521	5,173,541	+ 656,980	—	94 $\frac{1}{2}$	831 $\frac{1}{2}$	861 $\frac{1}{2}$ 4 $\frac{1}{2}$ Nil	
Bombay, Baroda & C. India	2,986	10.1.40	264,675	- 600	41	6,888,125	6,769,650	+ 120,975	—	108	90	102 $\frac{1}{2}$ 5 $\frac{1}{2}$ Nil	
Madras & Southern Mahratta	2,967	31.12.39	214,200	- 12,196	39	4,274,837	4,150,969	+ 117,868	—	1041 $\frac{1}{2}$	92	101 $\frac{1}{2}$ 7 $\frac{1}{2}$ Nil	
Rohilkund & Kumaon	571	31.12.39	18,933	- 1,897	13	133,193	127,599	+ 5,594	—	280	263	243 69 $\frac{1}{2}$ Nil	
South Indian	2,531 $\frac{1}{2}$	31.12.39	132,206	+ 4,979	39	3,078,778	3,093,515	- 14,737	—	102 $\frac{1}{2}$	88	901 $\frac{1}{2}$ 51 $\frac{1}{2}$ Nil	
Beira	204	Oct. 1939	71,976	- 4	4	71,976	—	—	—	—	—	—	
Egyptian Delta	623	20.12.39	7,106	+ 285	38	155,708	155,180	+ 528	Prf. Sh.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	5 $\frac{1}{2}$ Nil	
Kenya & Uganda	1,625	May 1939	206,557	- 11,295	21	1,220,870	1,309,332	- 88,462	—	55	39	45 7 $\frac{1}{2}$ Nil	
Midland of W. Australia	277	Oct. 1939	15,188	- 1,982	17	51,806	61,856	- 10,050	B. Deb.	911 $\frac{1}{2}$	871 $\frac{1}{2}$	88 49 $\frac{1}{2}$ Nil	
Nigerian	—	2.12.39	49,586	- 11,897	36	1,120,441	1,190,529	- 70,088	Inc. Deb.	—	—	—	
Rhodesia	—	2.12.39	388,154	- 4	4	388,154	—	—	—	—	—	—	
South Africa	—	—	3,284	6,140	44	26,089,107	24,998,486	+ 1,090,621	—	—	—	—	
Victoria	—	—	4,774	Oct., 1939	17	3,049,244	3,064,925	- 15,681	—	—	—	—	

Note. Yields are based on the approximate current prices and are within a fraction of 1 $\frac{1}{2}$. Argentine traffics are now given in pesos.

Receipts are calculated @ 1s. 6d. to the rupee.

ex dividend